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A Comparison of a Visually Presented Length with the Length Drawn

N. N. SEN GUPTA

I. *The Problem*

A line visually presented can be reproduced by an actual drawing of it. If the stimulus be removed and the act of drawing takes place after a fixed interval, a certain amount of error in reproduction arises. The purpose of the paper is to study these error-values.

The experiments were carried through about twelve years ago. The data were laid aside as they did not seem to implicate any definite conclusion. Certain later observations have suggested a meaning in the data.

II. *The procedure, materials and the subjects*

The method consists in presenting to the subject a card of $2\frac{1}{4}'' \times 3\frac{1}{4}''$ with a thick black horizontal line printed in the middle of it. The cards are placed face downwards. The subject takes up each card, has a look at it and places it on his right, face downwards. Then he tries to reproduce the line on a separate card with a pencil, provided for the purpose. The timing of the series was first made with a series of dummy cards with sample lines. It was found that the processes of taking up and laying down the cards after allowing time for looking at the line could be brought down to an average minimum of 3.5'' by practice. When the subject had to draw the line and remove the card on which he had drawn, the whole process took him a little over 6.5''. The total time allowed in the actual series of experiments was 8''.

A set of special time readings was taken each day by the experimenter. The times taken in the inspection of the lines and in their reproduction were recorded with the help of a stop watch. These are given in the tables under the headings "average presentation time" and "average reproduction time."

Four series of cards have been used. The lines are 2.5, 4, 6 and 8 cm. in length.

There were five subjects who participated in the experiment. Four of them were students of Psychology; the fifth was familiar with the laboratory atmosphere as he is an assistant in the laboratory. Only three of the subjects could be had for the complete series. Two of them left before the end.

Each length was presented 20 times on each day of the experiment. The order of the presentation was not the same. Each subject who has completed the series has 100 experiments on each length. The data in a tabulated form are given below :

TABLE I

Subject A

Data.	L. P.	A. R. L.	R.	A. P. T.	A. R. T.	R.	L. P.	A. R. L.	R.	A. P. T.	A. R. T.	R.	L. P.	A. R. L.	R.	A. P. T.	A. R. T.	R.	L. P.	A. R. L.	R.	A. P. T.	A. R. T.	R.							
I.	2.5 cm	3.05	+	.55	51/80	9/6	-	3/40	4 cm	4.9	+	.5	11/20	11/20	0	6 cm	6.5	+	.5	11/20	17/30	1/60	8 cm	8.2	+	.2	47/80	5/8	3/80	+	
II.	"	2.8	+	.3	1/2	59/80	19/80	+	"	4.0	0	9/16	11/20	1/80	-	"	6.6	+	.6	4/5	57/80	7/80	"	8.15	+	.15	4/5	7/10	1/20	-	
III.	"	3.2	+	.7	2/3	31/60	3/20	+	"	4.9	+	.9	8/15	11/30	1/60	+	"	6.5	+	.5	19/30	41/60	1/20	"	8.4	+	.4	2/3	7/10	1/30	+
IV.	"	3.1	+	.6	41/80	53/80	3/20	+	"	4.8	+	.8	47/80	13/20	1/16	+	"	6.4	+	.4	29/40	3/4	1/40	"	8.5	+	.5	3/4	69/80	9/80	+
V.	"	2.8	+	.3	1/2	13/20	3/20	+	"	4.4	+	.4	47/80	53/80	3/40	+	"	6.5	+	.5	27/40	43/80	11/80	"	8.9	+	.9	11/20	31/40	9/40	+

L. P. = Presented length.

A. P. T. = Average of the time of presentation.

A. R. L. = Average of the reproduced lengths.

A. R. T. = Average of the time of reproduction.

R. = Error.

Time recorded in seconds.

TABLE II
Subject B

Date.	L. P.	A. R. L.	R.	A. P. T.	A. R. T.	R.	L. P.	A. R. L.	R.	A. P. T.	A. R. T.	R.	L. P.	A. R. L.	R.	A. P. T.	A. R. T.	R.	L. P.	A. R. L.	R.	A. P. T.	A. R. T.	R.				
I.	2.5 cm	3.3	+.8	11/20	9/20	1/10	4 cm	5.1	1.1	+	1/2	43/60	13/60	6 cm	7.0	1.0	+	7/10	3/4	1/20	8 cm	9	1.0	+	13/20	17/20	1/5	+
II.	"	3.1	+.6	21/40	47/80	1/16	"	4.9	.9	+	51/80	47/80	1/20	"	6.8	.8	+	13/20	3/4	1/10	"	8.6	.6	+	4/5	33/40	1/40	+
III.	"	3.1	+.6	17/40	7/10	11/40	"	5.1	1.1	+	47/80	13/20	1/16	"	6.6	.6	+	27/40	9/16	9/80	"	8.4	.4	+	13/20	13/20	0	0
IV.	"	3.3	+.8	13/20	27/40	1/40	"	5.2	1.2	+	1/2	5/8	1/8	"	6.4	.4	+	9/20	11/20	1/10	"	8.8	.8	+	13/20	23/40	3/40	-
V.	"	3.0	+.5	23/40	9/16	1/80	"	4.9	.9	+	23/40	43/80	3/80	"	7.3	1.3	+	53/80	49/80	1/20	"	9.0	1.0	+	13/20	3/4	1/10	+

TABLE III

Subject C

Data	L. P.	A. R. L.	M.	A. P. T.	A. R. T.	R.	L. P.	A. R. L.	M.	A. P. T.	A. R. T.	R.	L. P.	A. R. L.	M.	A. P. T.	A. R. T.	R.	L. P.	A. R. L.	M.	A. P. T.	A. R. T.	R.
I.	2.5cm.	2.8	3	49/80	43/80	3/40	4cm.	4.3	3	7/10	7/8	7/40	6cm	6.3	3	11/16	27/40	1/80	8cm.	8.4	4	11/16	31/40	7/80
II.	"	3.0	5	21/40	31/80	9/80	"	5.3	1.3	1/2	19/40	1/40	"	6.4	4	23/40	23/40	0	"	7.9	1	13/16	13/20	13/80
III.	"	2.8	3	49/80	23/40	3/80	"	4.2	2	11/16	7/10	1/80	"	7.0	1.0	37/80	5/8	13/80	"	8.9	9	3/4	9/20	3/20
IV.	"	3.0	5	9/20	3/5	3/20	"	4.5	5	11/20	49/80	1/16	"	7.0	1.0	3/5	47/80	1/80	"	8.7	7	29/40	3/4	1/4
V.	"	2.9	4	17/40	11/20	1/8	"	3.8	2	11/20	5/8	3/40	"	6.9	9	51/80	29/40	7/80	"	8.8	8	23/40	7/10	1/8

TABLE IV

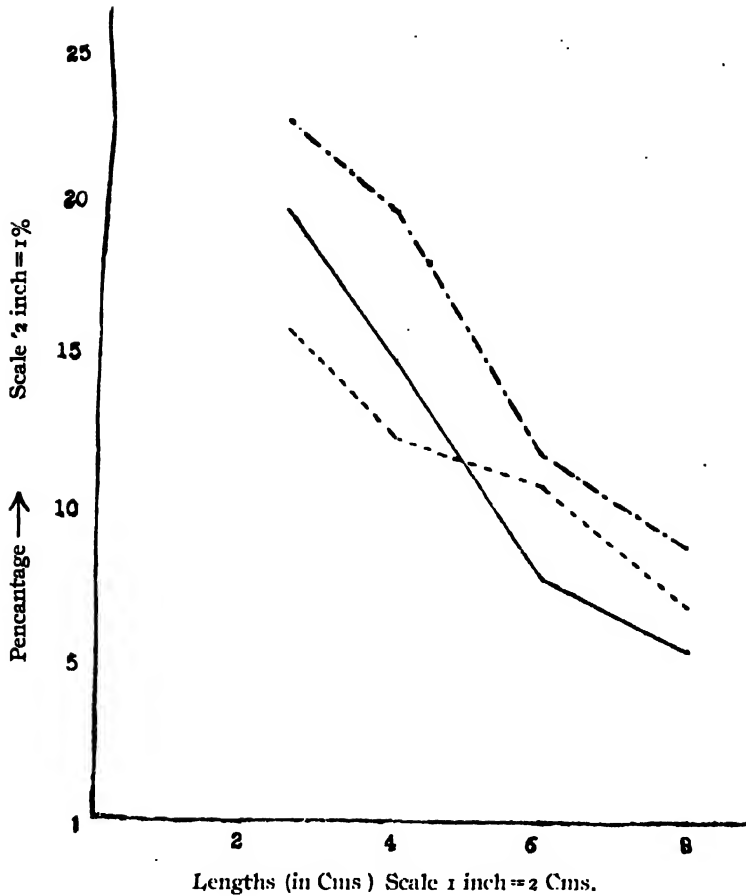
Subject D

Data	I. P.	A. R. L.	H.	A. P. T.	A. R. T.	H.	L. P.	A. R. L.	H.	A. P. T.	A. R. T.	H.	L. P.	A. R. L.	H.	A. P. T.	A. R. T.	H.	L. P.	A. R. L.	H.	A. P. T.	A. R. T.	H.	
I.	2.5cm.	2.9	+	3/5	7/10	+	1/10 4 cm.	4.6	+	27/40 53/80	1/80 6 cm.	6.6	+	13/20 53/80	1/80 8 cm.	9.2	1.2	49/80 11/16	3/40	+					
II.	"	2.8	+	41/80	9/20	-	1/16 "	4.4	+	29/40 11/16	3/80 "	6.4	+	47/80 9/16	1/40 "	8.0	0	7/10 17/20	3/20	+					
III.	"	2.5	0	3/8	19/40	+	1/10 "	4.4	+	19/40 39/40	1/80 "	6.8	+.8	39/40 7/10	11/40 "	8.4	+.4	13/20 13/20	0	0					

TABLE V

Subject E

I.	2.5cm.	2.7	+	21/40 27/40	+	3/20 4 cm.	4.4	+	3/8	2/5	1/40 6 cm.	6.9	+	11/16 17/20	13/80 8 cm.	8.6	+	4/5 47/80	17/80	—
II.	"	3.4	+	19/40 21/40	+	1/20 "	5.4	+	11/20 13/20	1/10	"	6.9	+	13/20 59/80	7/80 "	8.4	+	13/20 33/40	7/40	+



IV. Analysis of the Data

(1) An inspection of the data shows that there is a definite diminution of the percentage of error from the smaller to the larger lengths.

(2) An inspection of the tables again shows that the time of presentation of the stimulus and that of its reproduction exhibit but little variation, as between individuals and in the same individual, for the different lengths. The variations are from '02 to '07". It will also be observed that even when the times show a slight downward course, the amount of error does not show any corresponding deviation. The interpretation of the data must then be made on some other basis.

(3) An analysis of the data of introspection shows the manner of reproduction. Each subject gave about 400 introspections. In about 30% of these the subjects report that they cannot give any account of their manner of estimation. In about 16% of the instances they possess a more or less vivid impression of the line to guide them in the reproduction. In the rest of the instances the guidance is by a kind of negative judgment of

the type "This is enough," "This will do." Such judgments do not appear to be connected with any introspectible representation of the stimulus. The guidance is probably due to an *Einstellung*, an attitude of the motor type, inhibiting the process of drawing.

V. Conclusion

(1) The data of introspection seem to offer a line of explanation of the diminution of error observed in the experiment. The record shows that the lengths have almost always been over-estimated. There is hardly any instance of under-estimation.

(2) This fact, viewed in the light of the introspective data referred to above, indicates that the process of drawing the line goes on until the "attitude" referred to above is formulated into a definite judgment. This judgment in its turn inhibits the motor process.

(3) Neither the judgment nor the attitude is precisely timed to the process of reproduction. They arise only when the length has definitely exceeded. Hence there is always an over-estimation.

(4) It is also borne out by the analysis of the introspective data that there is no definite correspondence between the vividness of the image of the stimulus and the accuracy of reproduction.

(5) It is further found that the process of reproduction stops most often upon the arousal of an attitude and a judgment of the type indicated above even when the image is present. The attitude then is the first step; the formulation of the judgment the second step in the cessation of the work.

(6) There are instances when the attitude seems to have arisen but no judgment. In these cases, the over-estimation is greater. The judgment then is directly correlated with the cessation of the effort in these cases. This is specially true in the case of subject B, one who is not trained in the technique of experiments. But in the case of subject C and in many of the experiments with A, the process of reproducing ceases with the rise of the attitude. "There is a general feeling," says C, "that I have exceeded the limit and the effort stops of itself." A feeling of "enoughness" arises, 'says A,' and the hand stops. The attitude then is *directly inhibitory*. In these instances, the error values are the least.

VI. General Summing Up

The process of motor reproduction of a visually presented length is mainly 'guided' by an *attitude* with an inhibitory reference. The accuracy depends upon the timing of the rise of this attitude.

The Teacher and the Conflicts of Childhood

M. N. SEARL

It is long before man, even at his best, recovers in maturer form the unity of early childhood—its *single-mindedness*. For in its early form it is maintained only by submission to the drives of impulse and the swings of emotion. The functions of inner restraint and control must necessarily bring about a *division* of the mind, or of the self. In his first two or three years, the child, knowing only impatient and violent ways of trying to control any menace in his environment, is not yet ready to exercise any powerful function of self-control other than physical. But at three or four he has normally had opportunities of learning from experience that the restraints and controls exercised on him by his environment can be benevolent even when they have countered his own fervent wishes and impulses, and is, therefore, ready to begin to exercise such control or something approximating to it, on his own impulses, and emotions. That is, the possibility of inner conflict, conflict in the technical psychological sense, as compared with struggles with the environment, is an accompaniment of development and progress. No child is at all normally capable of it until control is more a matter of love than of fear, and until his ideals are subject to the reality rather than the pleasure principle, in that he can hold them without immediate satisfaction of them.

We must ourselves be tolerably content in this paper with a mere hint or two on the subject of ideal formation, and its obvious connection with control and conflict, and pass on to the shifts to which every child resorts at some time or other in varying degrees when conflict is intolerable or at least untolerated, and which lay their additional burdens on every teacher.

Let us select out of the many three outstanding examples of these false or unreal solutions of conflict, calling them

1. Idealising.
2. Separating the conflicting forces by
 - (a) Directing them to separated objects or aims,
 - (b) Expelling one of them by a measure of dissociation or 'projection.'

The child is by no means fully aware of what he is doing in pursuing such paths, but the reason does not seem to be far removed from his possibility of consciousness.

1. *Idealising*

The child develops his ideal in two interconnected ways, (a) through the unfolding of an inner, and at first far from fully conscious, standard of the way in which he wants other people to behave to him, (b) through the best of the ways in which they do actually behave to him and others, and his increasing power of appreciating that best even when it does not satisfy some of his immediate and more primitive demands. When the unconscious (more accurately super-conscious) standard is ready to become conscious, he seeks to make it real and satisfying by finding some fixed and embodied ideal of a father, a mother, a teacher, which includes an ideal of himself. In this way the child's still immature capacity for looking to the future can realise in the present his own budding ideal of his future development. It is an important step for the child. If his environment falls too far below his standard to supply due opportunity for it, his development must be seriously retarded. But we should understand that, in addition to providing a step towards realising the practical possibilities of making a way towards the ideal, it also serves to put the child's loved people beyond the reach of his still threatening emotional swing to fury and hatred, when they do not realise his ideal, or even his lower standards of behaviour. And fury and hatred are always destructive of the child's good ; in the grip of it he can no longer find any of it in himself or in those he hates, and he comes to dread such a state of affairs. Therefore, this process of idealising, of taking as ideal that which really is not so, is born out of the child's still small capacity for enduring conflict, and the pain of having his ideal approximately or occasionally realised, but not completely and permanently. He is still trying to obtain rather than to attain all he wants. If parents and teachers accept *themselves* as the child's ideal, and do not help him to the further step of holding an ideal which can be independent of immediate realisation, the child will not only find that step more difficult but will also be in a worse position to encounter inevitable disappointments and disillusion. If illusion is a bad guide, disillusion is often no better. The teacher who knows where he is in respect of idealisation is in an excellent position for helping the child to tolerate his conflicts and to move towards true resolution of them.

2. *Separating the Combatants or Conflicting Forces*(a) *By directing them to separated objects and aims.*¹

We start again with the struggle encountered by every child between conflicting forces of love and hate felt towards the same person.

The conflict of ambivalence can never be even partially resolved by the fear of hatred, whether active or passive, but only by the courage of love. To that end tolerance of conflict is a first step, and it is obviously a far more difficult one when the conflict between hate and love or even between hating and longing to be loved than between hating and the fear of being hated. Children in such cases are likely to try less satisfactory methods, and one such is the endeavour to find all that is loved (and/or loving) in one person, and all that is hated (and/or hating) in another. This obviates the struggle of ambivalence about either, separating the objects and directions of the conflicting elements, while retaining both within the bounds of the child's personality. Time and time again, a child giving great difficulty in school is struggling to make a difficult home environment into a place of refuge—a father or a mother he fears and hates, into the loved and loving beings he would have them be. The school, the teacher has to bear the brunt of this attempt, either because the child's love and feeling of security is actually strong enough to take the weight of the swollen burden of hate, or because the child's hate is already set strongly in this direction and he is already inclined to take the serious step of not caring how he hates and harms or is hated, or because, for some other reason, less disastrous results seem to threaten from either an internal and/or an external fight in this environment than in his home. Occasionally the reverse is the case. The teacher has an exemplary pupil and is amazed to hear that the child is a problem at home. Often the difference is largely due to the greater security, scope and understanding provided by the school. But this standpoint, so satisfactory for the teacher, is seldom the quite complete explanation. Often the child is to some extent dividing his love and his hate in such a way as to leave himself more free from inner conflict. In these circumstances a temporary and doubtful improvement in the home will bring about a serious deterioration in the school—the child at home becomes pleasant and amenable, the child at school querulous and stubborn. It is the same tendency at work—to find quite predominantly all that is loved in one direction and all that is hated in another separated direction. Expressed differently, one person or situation goes up in his

¹ Cf. Melanie Klein—*The Psycho-Analysis of Children*, p. 215 and other references to ambivalence in the same book.

estimation as another goes down; one goes down as another goes up. In such a case the school child is in need of firm handling as well as of wise and loving patience. Only so can he learn benevolent firmness in the control of his see-saw or pendulum-like swings of emotion rather than harsh and ultimately futile domination of them or of other people. And only after control has been established can he proceed to something better than mere control for solution of his conflicts. Always in such cases open contact between the home and the school is a difficult problem—the child feels that his safety mechanism of separated objects is threatened.

(b) By expelling one of the conflicting forces by some measure of dissociation or projection

To use the child's language, this is another way of dividing the do's and donot's. The method provides a falsely easy simplification of the situation and saves the internal struggle of opposing elements. In the child's final picture, for example, the teacher not only wants but demands that the child shall behave well, listen, learn, etc. The child does not want this in the least for himself. The teacher wants him to be on good terms with his fellows, and not to quarrel and 'scrap'. The child does not care about it in the least, or actively desires the opposite. There is no more difficult situation for the teacher, and it is a serious one for the child, who has no longer been able to keep the conflicting elements in the bounds of his own personality, but, as it were, hands one of them, a part of his real self, into the care of another person, from whom it returns to him no longer as a desire or even as insistence, but as an arbitrary compulsion. Very occasionally, of course, the actual state of affairs can be accurately described in this fashion. But far more often it is a more complex matter. Every child has some liking and appreciation of good behaviour, some desire to listen and learn, to be on really good terms with his fellows, although such desires may certainly have to encounter many difficulties, internal as well as external. The teacher, who is able to stimulate and encourage the child's own interest in his work, his own enjoyment of happy class-life, is the less likely to be used as the means of falsely resolving such conflicts. One also finds the other division of conflicting elements. The child is all eagerness and intentness and desire for good fellowship, but bitterly resentful of any interruption or external opposition. In this case he keeps all the do's and adds his own donot's to those belonging to the disturbing person or situation. He thus creates a kind of two-powered giant, and needs to display at least a double amount of aggression in opposition.

Occasionally a judicious encouragement to proceed just when the child expects an interruption will help to redress the balance, so that once again the intent little worker or sportsman will find, not in his environment, but in himself, that which would call a halt to the over-intensity. But where the balance is very precarious, this method would tend to upset it seriously, and also it can only succeed when the child is fairly clear that the teacher is not siding with him against some other interrupter—for that would still leave the conflict staged externally, between different combatants. The steady and patient proof that wise interruption can come from a benign source is, on the whole and in the long run, of greater value to the child than any astute short-cuts. And in general, the wise teacher will not allow even tact, and certainly not finesse, to interfere with the sincerity of patiently coping with the child's external staging of conflict, knowing that his own adherence to the long views of what Freud¹ has called the reality principle can best help the child to overcome the specious tendencies of the pleasure principle in the summary but often unreal solution of conflict.

¹ Freud—Formulations regarding the two Principles of Mental Functioning; *Collected Papers*, Vol. IV, p. 14.

Pupils' Preference for School Subjects

S. P. CHATTERJEE

Introduction

It was in England that I first investigated pupils' preference for different school subjects and compared my results with the orders of preference obtained by Dr. Cyril Burt.

England

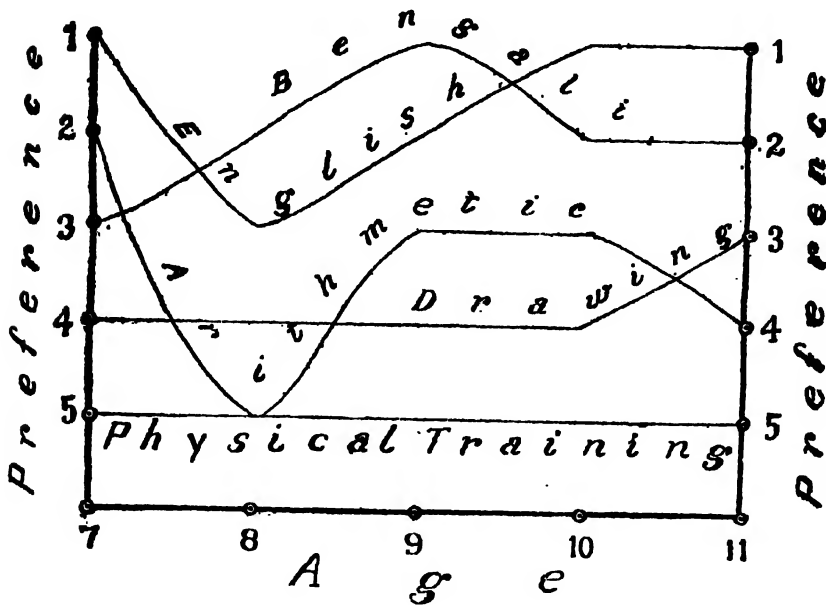
I discussed my results with several school teachers in England and all of them appeared to be very much interested. All agree that handicraft is the most favourite subject with the boys, next to that are singing and drawing. The girls give first preference to dancing, then in order of preference are the following:—singing, drawing, and handwork. It is interesting to find that the handwork graph is a straight line with the girls. It appears that a boy entering Junior School will give first preference to singing, but after a few months when he acquires some skill in handling mechanical tools he will prefer handwork to singing; hence we find in the period between the ages of seven and eleven the steady rise of the handwork curve and the proportionate fall of the singing curve. The boys take more liking for drawing up to the age of ten, and then it diminishes slowly. Another interesting point to note is the steady fall of the dancing curve between the ages of seven and eleven; they even prefer mechanical drill to dancing. The head teacher of a Junior School—a progressive thinker—said to me that the dancing curve will rise steadily the moment dancing becomes associated with natural boyish movement; he has tried this experiment in his school, and has found that his boys prefer dancing even to handicraft. As to orders of preference for literary subjects—reading, spelling, grammar, composition, and literature—all teachers agree that reading, which during the stage of mechanical acquirement ranks low, moves to a higher place and carries literature and composition with it. It is clear that the girls show distinct literary bias. In the order of preference for the rest of school subjects, we find Geography and Nature Study curves rise steadily; according to many teachers the children are very curious to know all about the Earth and the spirit of adventure is very marked, hence the rise of these two curves. It is regrettable to see the steady fall of the Scripture curve; a teacher said to me that the Sunday School is responsible for this. All teachers of course do not agree with the fall; a teacher told me in this connection, "My boys are very hot at Scripture."

India

I have recently started investigating this problem in Calcutta schools. For this purpose I have selected two classes for the present—Class III and Class VIII, and distributed a list of school subjects to each of the pupils in the class. The boys were asked to rearrange the school subjects in order of their preferences. Each answer was carefully scrutinised by the teacher of that particular subject with a view to ensuring more accuracy.

PREFERENCE CURVES

CLASS III



The results have been tabulated as follows :

TABLE I

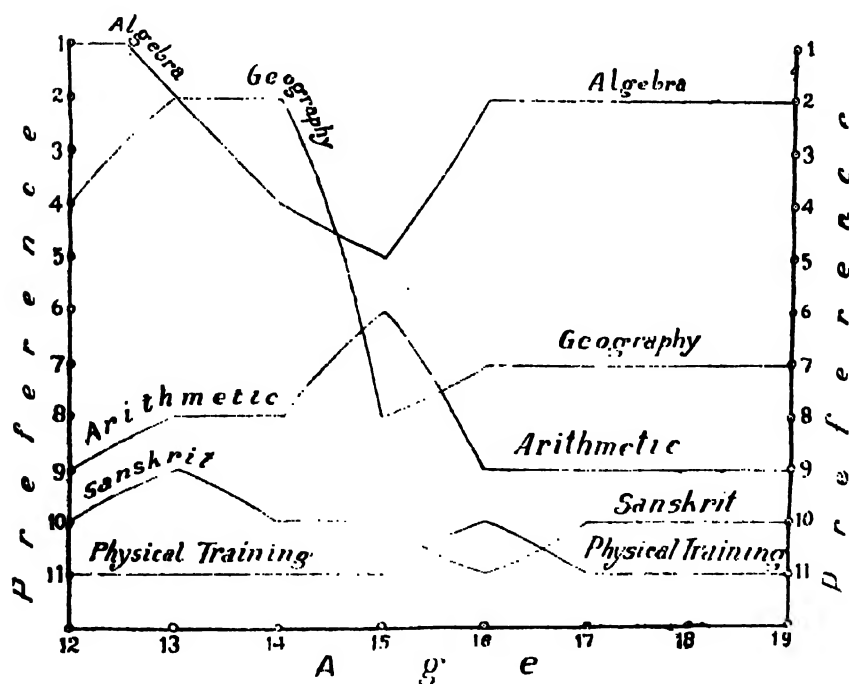
Class III

School Subject	Age				
	7	8	9	10	11
Arithmetic	2	5	3	3	4
Drawing	4	4	4	4	3
English	1	3	2	1	1
Bengali	3	2	1	2	2
Physical Training	5	5	5	5	5

It is clear from the table that English and Bengali are undoubtedly the most favourite subjects with our little school boys, and that unlike English school children our boys are not keen on drawing. Physical training also ranks lowest in the estimation of our boys. This is a serious matter, which needs the careful attention of our educationists. It may be due to the type of physical training imparted to our boys, which, perhaps, does not appeal to them. Better results may be obtained if, as is done in England, emphasis be laid on natural boyish movement. As it has been realised by the educationists that art is an essential element in the daily life of the child, steps should be taken to create interest for drawing and other artistic work.

PREFERENCE CURVES

CLASS VIII



Let us now turn to older boys. The results of investigation have been tabulated below :

TABLE II

Class VIII

School Subject	Age							
	12	13	14	15	16	17	18	19
Algebra	1	1	4	5	2	2	2	2
Arithmetic	9	8	8	6	9	9	9	9
Geometry	3	3	3	7	6	6	8	8
English Comp.	8	8	6	4	6	6	6	6
English Text	6	6	7	2	4	4	5	5
Bengali Comp.	7	7	8	3	5	5	3	3
Bengali Text	2	5	5	1	1	1	1	1
History	5	4	1	4	3	3	4	4
Geography	4	2	2	8	7	7	7	7
Sanskrit	10	9	10	10	11	10	10	10
Physical Training	11	11	11	11	10	11	11	11

The table shows that physical training ranks lowest as in the case of younger pupils. Boys are also not keen on Sanskrit, that justifies making the subject optional in the new curriculum for Matriculation examination of the Calcutta University. Of mathematical subjects Algebra is very popular ranking first in the list. Next, are the literary subjects, Bengali and English, boys preferring texts to composition. Boys begin to take interest in Geography in the age range 13-14 but soon develop a distaste for the subject. This is certainly due to faulty teaching, teachers failing to arouse interest in the subject. On realising this, the authorities of the Calcutta University have recently started a course of training for Geography teachers. History is quite a favourite subject with the boys, ranking almost equal with English.

I have tentatively put forward the above conclusions, which may undergo some modification in the light of further researches on the subject.

*Order of preference for the chief subjects of the English Elementary
School Curriculum*

Subject	Boys	Girls	Boys	Girls	Boys	Girls
Singing ...	1	2	4	1	9	7
Dancing ...	4	1	11	2	12	1
Drill ...	5	12	6	11	7	10
Drawing ...	3	3	2	3	3	6
Handwork ...	2	4	1	4	1	4
Reading ...	11	8	8	6	6	2
Spelling ...	12	11	13	9	14	13
Grammar ...	15	15	14	15	13	14
Composition ...	13	10	12	8	8	3
Literature ...	8	6	10	7	10	5
Arithmetic ...	7	13	0	14	11	15
History ...	10	7	7	10	4	0
Geography ...	14	14	5	13	5	12
Nature Study ...	6	5	3	5	2	8
Scripture ...	0	0	15	12	15	11
Age ...	7		10		13	

CALCUTTA

A Study of Anger in Children

SHRIMATI B. NAGARATNA

Problem.—To study the anger behaviour of children below the age of six and to determine the changes, if any, in the situations that evoke this emotion and the growth in its expressions with increasing age.

Introduction.—This problem is no new one in psychology. The study of the anger outbursts of children has been conducted chiefly through observation since the time of Preyer, who may be regarded as the founder of the science of Child Psychology. The situations that evoke anger and its characteristic expressions have been more or less thoroughly investigated by Goodenough who made a study of forty-five records, kept by parents, of anger outbursts of their children for varying periods ranging from about three days to one month. Other notable contributors to our understanding of the situations, expressions and the methods of control of anger in children are Watson, Bridges, and W. E. Blatz and Dorothy A. Millichamp.

To summarise the results of these investigations, it would appear that the first observed situation that arouses anger in children is hampering of bodily movements, which can be observed in new-born children even a few hours old. A little later, delayed feeding, physical discomfort due to soiled or wet clothes, and a general desire for attention act as sources of anger. Still later, when play becomes the dominant interest of the child, conflicts over play or play materials is an important source of anger. At a more developed stage come problems of self-help and conflicts over authority, which generally take the form of resentment at being assisted against will, resentment at adult commands and prohibitions, etc.

The characteristic expressions of anger according to all these investigators are slashing arms and feet, crying, stiffening of the body, screaming, kicking, stamping the feet, throwing oneself on the floor, biting, hitting or threatening the offender, calling names, making grimaces, sulking, purposely annoying adult offender by engaging in some misdeed, refusing to eat or swallow food, refusing to budge from place, arguing and insisting on one's own point of view, etc. It is generally agreed that development with regard to anger expressions takes place through a progressive substitution of directed in place of undirected behaviour, as well as less violent and

indirect methods of attacks on the offender in place of direct and violent methods.

The attempt is made here to study the anger behaviour of children from the standpoint of the instinctive drives thwarted, rather than on the bare objective situations as was so far done. Since anger, by definition, arises out of the thwartings of the instinctive drives of the organism, such a classification might be expected to yield fruitful results. Further, the study of anger will afford much valuable information indirectly, regarding the development of the other instinctive drives.

Plan and procedure.—The data for this study consists in parents' records of the anger behaviour of children. The parents were required to record, in a printed chart, every incident of anger outburst of their child, for a period of a fortnight. A longer period of observation was expected to vitiate the results as the emotional life of the child undergoes rapid development, especially in early infancy. The age of each child was calculated nearest to the month up to the day the records began to be kept.

In the printed charts, columns were provided for information, such as the activity in which the child was engaged just before the outburst, the immediate cause of the outburst, the behaviour exhibited by the child during the outburst and the methods adopted by parents to control the child. Blanks were provided at the end of the charts for information such as the name, age and sex of the child, the name, age, education, employment and income of the parents, the number of brothers and sisters in the family, etc.

Returns.—Thirty-one records of children ranging in age from 10 months to 66 months were obtained. The group consisted of children from the middle-class homes. The majority of the records were filled up for about two weeks.

All the mothers were literate in their vernacular and the majority of the fathers were graduates of the Mysore University.

Treatment of results

1. *Age groups.*—The 31 children in the group were divided into two age groups. Children between the ages of 10 and 30 months (30 months being the median age of the group) constituted the younger group, whereas children between the ages of 30 and 66 months constituted the older age group. There were 15 children in the younger group, whereas there were 16 in the older age group.

2. The group consisted of 17 boys and 14 girls. Within each age group and sex group the ages of children were fairly distributed.

Analysis of data

A. Situations.—As has been already pointed out, the situations were analysed from the point of view of the instinctive drives that were thwarted. Nine types of situations leading to anger outbursts were distinguished.

1. *Situations involving a thwarting of the play impulse*:—Snatching toys, interruption of play, refusal of permission for play, refusal of co-operation in play, destruction of play materials, etc., which often provoked the child's anger, were included here.

2. *The thwarting of the self-assertive impulse*:—The situations included here were, being hit or injured by others, being scolded, teased or ridiculed, showing preference to others when the child is waiting to be attended, forcing of adult's assistance upon the unwilling child, aggression or bossing on the part of other children, hampering of bodily movements, etc.

3. *The thwartings of the food-seeking impulse* included such situations as a desire for sweets, delayed feeding, interruption while eating, etc., when the children usually exhibited anger.

4. Resentment at refusal of adult assistance involved a *thwarting of the appeal impulse*.

5. *Thwartings of the curiosity impulse*:—Anger outbursts when the child does not receive a satisfactory answer to a question, when his exploratory activities are thwarted or when his desire to see new things (desire for being taken out) are not satisfied, are included under the thwartings of the curiosity impulse.

6. *Thwartings of the impulse of repugnance*:—Instances of the instinct of repugnance which were found in the records are dislike of distasteful food such as castor-oil, medicine, etc., dislike of dirty clothes, etc. When the child showed resentment when compelled to take distasteful food, it was considered as due to the thwarting of the instinct of repugnance.

7. *Thwartings of the display tendency*:—Conflicts over the child's desire to wear beautiful clothes or desire for other articles of dress or toilet were included here.

8. *Thwartings of the rest-seeking impulse*:—Interruption to sleep, desire for lying down while convalescent or fatigued, were included here when they led to anger outbursts.

9. *Thwartings of the parental impulse*:—Indignations at the ill treatment of other children, or animals (usually domestic pets), were treated under the thwartings of the parental impulse.

B. *Expressions of anger*

The anger expressions reported for this group of children were considered under two major types—primitive and refined.

1. Primitive expressions of anger include—

(a) *undirected behaviour*, such as screaming, crying, throwing oneself on the floor, rolling on the ground, undirected kicking, stamping the feet, slashing of arms and feet, gnashing of teeth, frowning, pouting, etc.

(b) *behaviour directed against others* such as hitting, biting, pinching, threatening and scolding the offender, calling names, making grimaces, destroying objects, etc.

(c) *behaviour directed against oneself*, such as refusing to take or swallow food, scratching one's face, etc.

2. Refined expressions of anger include—

(a) *indirect attacks on others*, such as purposely annoying the parent or adult by engaging in some prohibited activity, carrying tales against the offending person and refusing to co-operate ;

(b) *cutting oneself away from social contacts*, such as sulking, refusal to budge from place, refusal to speak, refusing an object originally desired, etc.

C. *Methods adopted by parents to control the anger outbursts of children*

The methods adopted by this group of parents were classified into two major groups.

1. *Adult gives in to the child's wish* :—This includes yielding to the unreasonable demands made by the child, removing the source of irritation or annoyance, and punishing the person who has aroused the anger of the child.

2. *Adult opposes the wish of the child* :—Four different methods by which the adult usually opposes the child's wish were distinguished.

(a) *Coercion* : Coercion of various forms is very common among parents to enforce their commands. These coercive methods are often violent and primitive, e.g., beating the child, scolding him, threatening him with punishments or even frightening him by the mention of some bogey. But more refined and subtle forms of coercion are ridiculing the child, excluding him from the society of the adult (either by sending him out of the room or by not speaking to him) and deprivation of privileges.

(b) *Pleasurable emotional appeals* : Another way in which the child's anger outburst is brought under control is by pleasant emotional appeals, such as soothing by patting, stroking, coaxing, speaking gently, etc.

Other methods used involving an appeal to the pleasant sensations are giving food or sweets, promising the child desirable things (toys, eatables, trips, etc.). Control of the child's anger by a resort to praise also falls in this group of pleasurable emotional appeals.

(c) *Ignoring outburst and diverting attention* were two other methods usually resorted to by this group of parents to control the anger outbursts of their children.

(d) *Rational appeal*: Occasionally anger outbursts are brought under control by appealing to the reason of the child, the parent trying to show to the child the unreasonableness of his demands.

Results: Certain well marked age and sex differences in the frequency with which different types of situations occur in the life of the child as sources of anger, and the different types of expressions that are exhibited, as well as in the attitude of parents towards children's anger outbursts were noted as a result of the manipulation of the data obtained through the records kept by parents.

A. Situations

1. The three major sources of annoyance for this group of children, whatever the age or sex, are—

(a) the thwartings of the play impulse responsible for about a third of the outbursts (31%);

(b) the thwartings of the self-assertive impulse, responsible for about a fourth of the outbursts (26%);

(c) the thwartings of the food-seeking impulse responsible for about a fifth of the outbursts (19%).

The other impulses that together constitute only about 24% of the outbursts are—appeal (8%), curiosity (5%), repugnance (4%), display (3%), parental (1%).

2. *Age differences*: The anger outbursts occasioned by the thwartings of the food-seeking impulse and the appeal impulse decrease in frequency with increasing age (23% to 16% and 13% to 4% respectively) probably due to a development of a wider variety of interests and also a knowledge of one's own growing capacity to control the environment without adult assistance.

Instincts that show development with age as revealed by the increasing proportion of anger outbursts occasioned by them are self-assertion (22% to 31%), curiosity (2% to 8%) and display (2.5% to 4%).

The play impulse seems to be equally important at both the age levels and constitutes about a third of the outbursts (30% at the lower age level and 32% at the higher), at each of the age levels.

3. *Sex differences* : Anger outbursts occasioned by the thwartings of the self-assertive instinct and the appeal instinct are more frequently reported for boys than for girls (31% and 20% for boys and girls respectively for the self-assertive instinct, and 10% and 7% for boys and girls for the appeal instinct), whereas the thwartings of the food-seeking instinct (15% for boys and 25% for girls), the parental instinct (5% and 2% respectively for boys and girls), and the display impulse (2% for boys and 5% for girls) are more often reported in the case of girls.

Outbursts arising out of the thwartings of the play impulse, the curiosity instinct and the instinct of repugnance do not show any appreciable sex differences.

4. The specific situations that are important sources of anger at the lower age level are hampering of bodily movements, snatching toys, delayed feeding, and forcing adult assistance. The chief sources of anger in the higher age group are refusal to co-operate in play and showing preference to others.

B. *Expressions of Anger*

1. Primitive behaviour constitutes about 85% of the total number of anger expressions reported, only about 15% of the expressions reported being of the refined group.

2. Primitive behaviour of the undirected type accounts for about 60% of the expressions reported whereas behaviour directed against others or oneself forms about 20%.

3. *Age differences*. Primitive undirected anger (especially the more primitive amongst these, such as crying, screaming, shouting, throwing oneself on the floor, throwing about objects and jumping up and down) tend to decrease with age (68%-59%), whereas indirect attacks on others markedly increase with age (1%.-12%).

4. *Sex differences* : Undirected behaviour is exhibited more frequently by boys (66%) than by girls (60%), whereas directed behaviour (attacks on others), of the primitive as well as the indirect types, is exhibited more often by girls than by boys (20% and 25% respectively for the primitive and 5% and 9% respectively for indirect attacks for boys and girls). This latter sex difference is particularly marked for carrying tales (2.4% for boys

and 4% for girls), refusing to co-operate (13% for boys and 26% for girls) and sulking (25% for boys and 4% for girls).

C. *Methods adopted by parents to control the anger of children*

1. The methods commonly followed by this group of parents appear to be (a) coaxing and soothing by pleasant emotional appeals (30%), (b) yielding to child's unreasonable wishes (26%), (c) ignoring outbursts and diverting child's attention (24%). Coercive treatment reported only in the case of 13% and rational persuasion in 4%.

2. *Age differences*: (a) Where the child's desire is unreasonable, as judged by adult standards, the parent gives in to the child in about 35% of the anger outbursts. As the child grows up, the parent yields to the child in only 20% of the cases.

(b) Coercive methods (especially the more violent and primitive methods such as beating, scolding, threatening, etc.) are employed more often with the older children (19% vs 6%).

(c) Controlling the anger outbursts of the child by giving sweets or food to pacify the child is much less common at the higher age level than at the lower (44% vs 3% for the lower and the higher age groups).

(d) The younger age group is more easily diverted from its original goal; and ignoring of outbursts occurs with equal frequency for both the age groups.

(e) Rational appeals were reported with slightly greater frequency for the higher age group.

3. (a) The issue is more often yielded to the boys than to the girls (30% vs 21%). This may be due to the more violent outbursts of boys.

(b) Pleasant emotional appeals were reported more often for girls than for boys (32% vs 27%), especially soothing by patting, stroking, etc.

(c) Boys appeared to be more responsive to praise.

(d) Girls appeared to be more easily diverted from the original goal than boys (17% vs 10%).

(e) Persistently ignoring temper tantrums is equally successful with both the sexes (11% vs 11%).

Conclusions

It may be possible, on further investigation with a larger number of children than were included in this study, to establish the gradual changes in

the anger situations, expressions and parental attitudes towards the outbursts of children with increasing age. Such a study may have a great educative value to parents in their dealing with their offspring. But as it is, certain clear-out differences between the younger and older children and between the two sexes will not be without interest to those who are concerned in child education.

The development of the various impulses will enable the parents to understand the significance of the child's behaviour at different ages. Such an understanding will enable the parents to take the right attitude towards the activities of children. It will not do to be constantly thwarting the child's desire when these are very strongly felt by the child. It will either lead to a suppression of all the impulses essential in a fully developed personality or it will make the child unbearably aggressive towards his environment as a result of the constant resentment provoked by thwartings at every turn.

The strongest impulses are, as it has been noted, the play impulse and the self-assertive impulse.

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It may be here pointed out that the aversion that the majority of children take to any sort of serious work is due to the constant and unpleasant checks, scoldings, prohibitions, commands, etc., that adults put in the way of their play activities and this leads to resentment against the activity that has to be substituted in place of play. It is through the faulty handling of the free activities of children that such an unfortunate contrast is established between play and work. If the parents understand this they can terminate the activities in a smooth and pleasant manner making the child take pleasure in the activity that requires to be accomplished.

Another important point to be noted is the important rôle of the instinct of self-assertion in the behaviour of children. This impulse comes to play a greater and greater part with growth. In order to establish a bond of affection towards the parent it will not do to slight him in any manner (by teasing, punishing, etc.), for the resentment against the implied inferiority will make the child withdraw from social contacts with the person. In some cases this may hinder every sort of activity on the part of the child for fear of disapproval or ridicule. It will curb all enterprise and make the child withdraw more and more into himself. In some cases this slighting of the child may provoke dislike, which may gradually develop into hatred and make him positively anti-social. In order to guard against such probabilities the parent has to take extreme care to encourage the child to express himself on every occasion without fear of ridicule or disapproval.

Another important outcome of this study is that certain impulses, curiosity and the parental impulse, are slower to develop than the above-

mentioned instinct and, therefore, these must not be either urged upon the child before he shows any inclinations towards them or suppressed, so that the child gradually loses every interest in what is happening before him and loses all initiative. The instinct which is most subject to both these forms of mal-treatment is curiosity. Children are constantly thwarted in their attempts at understanding their environment through exploration, questions, etc. On the other hand, they are constantly compelled to learn to read and write before they exhibit any interest in the alphabet. The natural result of this is an aversion for study of books with any real interest so common amongst the students of the present day.

Just as the situation which provokes anger is closely related to the attitude of the parents, so also are the expressions of anger. If the child learns that a certain behaviour on his part is successful in obtaining what he wants, he will repeat it. On the other hand, if he knows that a certain kind of behaviour on his part does not bring any satisfactory result, he will abandon it in time. Therefore it is possible by the parental attitude to control the expressions of anger—substitute desirable form of behaviour in place of undirected, violent and primitive forms of behaviour. But in this process of training the child, the parent should not be too eager; for the typical expressions of anger are determined as much by instinctive maturational factors as by external factors of environment and training.

This study reveals that the anger behaviour of children in early infancy is largely undirected and violent. This comes to be substituted only gradually by behaviour directed against the offender. Directed behaviour undergoes a further process of development from direct and violent types to indirect and shrewd attacks. This development depends not only upon the environmental influences but also upon the developing intelligence of the child which enables him to perceive the consequence of his actions.

It is therefore necessary that training for the desirable forms of behaviour should proceed only gradually. The child's outbursts should not be handled roughly, for this produces added resentment. It is also not wise to bribe the children by giving sweets, promising rewards, etc., which will make the chances of a repetition of the behaviour greater. Gentle but firm methods which oppose the wishes of the child, such as ignoring, rational persuasion, etc., may be the best methods as a rule, but where the issue is not of major importance and the child's wish is reasonable, it may not be harmful to yield to the child sometimes, as this will lessen the effects of constant opposition and make the child understand the reasonableness or the unreasonableness of his desire.

A Psychological Interpretation of the Primitive Pubescent Ceremonies

JAGDISH SINGH

The period of puberty marks the advent of a great change in the life of both the boy and the girl. The primitive tribes celebrate this occasion with an elaborate ritual, which is spread over many days and is of great importance to the whole tribe to which the individual belongs. As a matter of fact, there is never only one individual who is the centre of the tribal ceremonies. Usually a number of individuals are chosen at the same time for the celebration of this period. In the case of the boy, the puberty ceremonies have been styled as 'initiation ceremonies' by anthropologists as well as by psychologists. These initiation ceremonies differ from tribe to tribe in general details, but if we study closely the multifarious details of the puberty rituals, we find certain common observances, which, though they may differ in detail, have the same objective. For the purpose of this paper, I have chosen out of the initiation ceremonies of boys a common theme of what Sir J. G. Frazer calls "the drama of death and resurrection." This is common to a large number of the primitive tribes in Australia, Africa, Melanensia, New South Wales, etc.

To seek for an explanation of this ritual is not an easy task. In the ritual of puberty celebrations, we see institutions "which have a long developmental history, in the course of which their original meaning has been lost, new forms have replaced old ones and a new meaning has been imposed upon the unintelligible elements" (Reik—*Ritual*, p. 98).

Sir J. G. Frazer, in his absorbing book *The Golden Bough*, expresses the opinion that in the ritual of death and resurrection there seems to be a pretence of killing the novice as a man and restoring him to life as an animal. The motive for attempting to deposit the soul in a safe place outside of the body at puberty may have been a fear of the dangers which, according to primitive notions, attend the union of the sexes. But Frazer is not quite sure of his ground, for he remarks at another place "that a more exact acquaintance with savage modes of thought will in time disclose this central mystery of primitive society."

Other anthropologists and psychological thinkers like Malinowski, Stanley Hall, Howitt, etc., believe that the initiation ceremonies "consist in the weaning of the boy from the domestic shelter and submitting him to tribal authority" (Malinowski—*Sex and Repression in Savage Society*, p. 258). They assert that the period of adolescence is a period of transition from childhood to puberty, and as such its importance is stressed in the peculiar primitive way. Stanley Hall, for instance, says that "circumcision marks the advent of youth to the rites of manhood, and is sometimes essentially civic, political or social. It may signalise initiation into the secret societies or religious mysteries of the tribe" (Stanley Hall—*Adolescence*, Vol. II, p. 248). According to Howitt, "the intention.....is to make a momentous change in the boy's life; the past is to be cut off from him by a gulf which he can never re-pass. His connection with his mother as her child is broken off, and he becomes henceforth attached to the men" (A. W. Howitt—*Native Tribes of South-East Australia*, quoted by Thomas in *Source Book for Social Origins*, p. 215). The youths of the tribe are evidently made "worthy members of the community, according to their lights. Certain principles are impressed upon them for their guidance during life—for instance, to listen to and obey the old men; to generously share the fruits of the chase with others, especially with their kindred; not to interfere with the women of the tribe, etc. (*ibid.*, p. 231). Spencer and Gillen, in their study entitled *Native Tribes of Central Australia*, say that the youths at this occasion are told "that the ceremony through which they have just passed will promote their growth to manhood, and they are also told by tribal fathers and elder brothers that in future they must not play with the women and girls, nor must they camp with them as they have hitherto done, but henceforth they must go to the camp of the men..." (quoted by Thomas in *Source Book for Social Origins*, p. 256).

There are still simpler explanations. Arlitt believes that the primitive puberty ceremonies were tests of courage and endurance (Arlitt—*Adolescent Psychology*). To Leta Stetter Hollingworth, the purpose of puberty rites appears to be formal education (Leta Stetter Hollingworth—*Psychology of the Adolescent*).

Mary Chadwick takes up another line of attack. She feels that "the actual origins of these various rites are in many cases impossible to ascertain. But by comparing with other symbolic actions, beliefs and fears, which are to be found in individuals at other periods of the world's history, or even in our own day, we sometimes believe we are able to learn something of their intention. To the primitive mind everything that is encountered in life, which is obviously highly important, and which they can neither

understand nor control, seems to be of supernatural origin—that is, the work of gods or evil spirits—and connected with magic in some way. They attempt to deal with it, therefore, in a fashion which serves to explain it to themselves, and pass on the same theories, of course, to the girls (and boys) they instruct. Having arrived at some method of explanation which satisfies themselves, they will, through symbolic representation, enact what they feel to have been the cause of the occurrence, and thus show the idea they can control it to some extent through this imitative magic ” (Mary Chadwick—*Adolescent Girlhood*, p. 43).

All these explanations are superficial and do not go very deep into the question. The psycho-analytic explanation is along entirely different lines. Analysing the ritual of death, Theodor Reik propounds the theory that “circumcision is carried out for the purpose of punishing and preventing incest ; the killing for the punishment and prevention of parricide ” (Theodor Reik—*Ritual*, p. 116). There is evidently a very close relationship involved between the ostensible killing and the circumcision of the youths.” Circumcision represents a castration-equivalent and supports in the most effective way the prohibition against incest. If we understand circumcision as a punishment for incestuous wishes, then the different tests of courage and fortitude which are denoted as tortures will be punishments for wicked wishes against the father. The rite of being devoured by the monster is a threat of death and a psychic reaction to the youth’s unconscious intention to murder his father (*ibid*, p. 105). “The primitive fathers project their own hostile feelings towards their sons on to the monster which devours the youths, and in so doing make it evident that an essential part of these feelings is derived from an unconscious fear of retaliation. Their apparently affectionate and protective actions merely serve to conceal their hostility towards their sons (*ibid*, p. 109). “Unconsciously circumcision and the various cruelties practised on the youths signify the suppression of their sexual and aggressive impulses ; consciously primitive peoples regard these procedures as institutions for the actual promotion of those impulses ” (*ibid*, p. 117). Circumcision is supposed to increase the young men’s capacity for procreation, and the cruelties they undergo, to strengthen and test their warlike spirit. The rearrangement of the psychic material is so violent as to cause a complete reversal of the real motivation. The motive underlying this rearrangement “is the ambivalency of feelings and the relegation into the Unconscious, caused by age-long repression, of cruel impulses. In the same way the systematic motivation of circumcision and tortures at puberty is concerned to stress the friendly and tender purpose of the two rites towards the young man ” (*ibid*, p. 117f).

Thus we have seen that the ostensible killing of the youths is a punishment for their unconscious desire to murder. This punishment proceeded from the father-generation, and was the expression of hostile and revengeful wishes on the part of the grown men towards the youth. "The primitive fathers signify to their sons by means of these rites that they are ready to receive them into the company of men, but only on one condition, namely, the youths must renounce their incestuous and hostile impulses. This is a *conditio sine qua non*, and the threat of death very clearly indicates what awaits the youths if they do not carry out this condition. It must not be overlooked that these rites represent an advanced stage in the development of 'savage' peoples. Originally the punishment of death was actually carried out by the infuriated fathers. A long path is traversed in the development of the peoples from the actual killing of the youths and the consequent strong remorse of the fathers up to the two-period rite : sequences which say in effect, 'We love you, but we must rid you of your infantilisms' " (*ibid*, p. 119f).

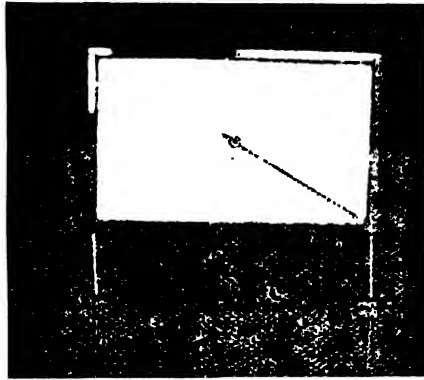
The second act of the drama, *viz.*, *resurrection*, is apt to confuse us if, like the ethnologists, we view it as only a direct continuation of the death rites in the ceremony of resurrection. It is not so. It is, on the other hand, a reaction to such an impulse. "The killing of the youths is a rite representing the hostile desires of the young men which are rooted in the incest complex, whereas in the identificatory character of the resurrection rites we see the affectionate and homosexual reaction to those desires becoming manifest " (*ibid*, p. 123).

The psycho-analytic theory that I am supporting in this paper was first developed by Theodor Reik on the lines of Freud's hypothesis as outlined in his book *Totem and Tabu*. But the theory has found support later from Dr. Geza Roheim who did an intensive field work among some of the most interesting primitive peoples of the world, in Australia, Melanesia, and elsewhere. He analysed the dreams, phantasies, totemic ceremonies, and other data provided by his material. His thesis is that "the symbolic castration or circumcision.....is closely connected with the primal scene" (Roheim—*The Riddle of the Sphinx*, p. 71). "The son must die because he wished to part his parents and to kill his father " (*ibid*, p. 134).

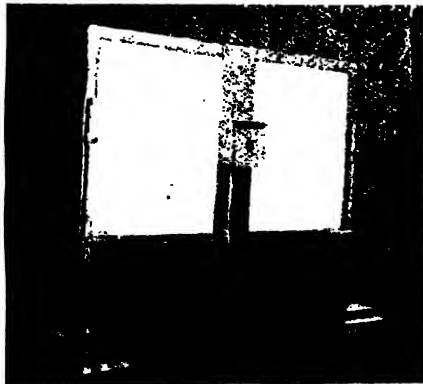
A NEW TYPE OF CAMPIMETER

M. GANGULI

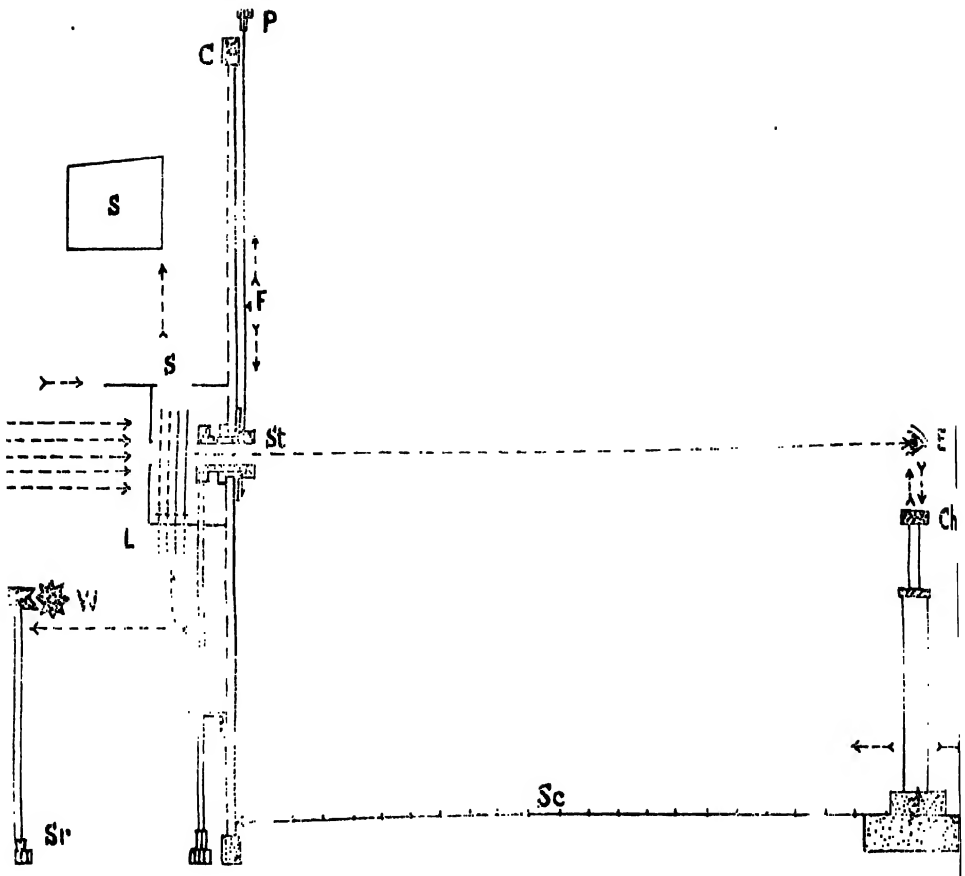
The campimeter under report was devised about two years ago. Since then it has been regularly used by the students of the Department of Psychology, Calcutta University.



Front View



Back View



Diagrammatic Representation of Campimeter—Vertical Section

C—Campimetric board made of $\frac{3}{16}$ " thick glass, ground on both faces with an aperture in the centre and with a wooden frame and a narrow wooden plank shown by the dotted line at the back for fixing the slide-box.

P—Pointer with F as the fixation point which (F) can be moved both ways (inwards or outwards) by manipulating a rotating screw-nut at the end.

S—Glass slides ; dotted lines indicate ground glass and deep lines coloured glass in the slide-box fixed at the back of the campimeter.

St—Light stimulus.

L—Slide lifting device ; four movable brass pins with flat heads are inserted at the bottom of the slide-box through small holes in order to lift the slides when required.

E—Eye of the subject.

Ch—Movable chin-rest.

Sc—Centimetre scale.

Sr—Rotating screw-nut arrangement shown separately for rotation of a toothed wheel, thereby producing a circular movement of the pointer.

W—Toothed wheel within the wooden slide-box at the back of the campimetric board for changing the meridian of the pointer.

I may note here a few points about the new apparatus :

1. The line of vision is horizontal, and this with the chin-rest supplied, ensures the maintenance of an approximately constant position of the axis of the body.

2. The campimetric board is made of $\frac{3}{16}$ " thick glass ground on both sides in order to ensure uniform distribution of brightness. The brightness on the surface of the board can be varied by placing it at a suitably illuminated portion of the laboratory or adjusted with artificial illumination behind the ground-glass board. The colour components in a mixture (when coloured and ground-glass slides are used together) can be discriminated easily with the help of the dull ground-glass slide on which the colour components are projected. If necessary, the campimetric board or the ground-glass slide within the colour box, or both, can be suitably darkened by rubbing them with soot.

3. There is arrangement for the use of different colour slides as stimuli for different types of individuals and hence the instrument has been found to be very suitable for demonstration to students.

4. Investigation along different meridians can be carried on with a comparatively easy manipulation of the apparatus. Exploration and measurement of the 'blind-spot' have been rendered comparatively easy by the fact that the angle of rotation of the graduated pointer can be directly read off in angular degrees at the centre of the campimetric board.

CALCUTTA.

A Study of the Free Drawings of a Nine-year-old Child

K. L. SHRIMALI

Introductory Statement

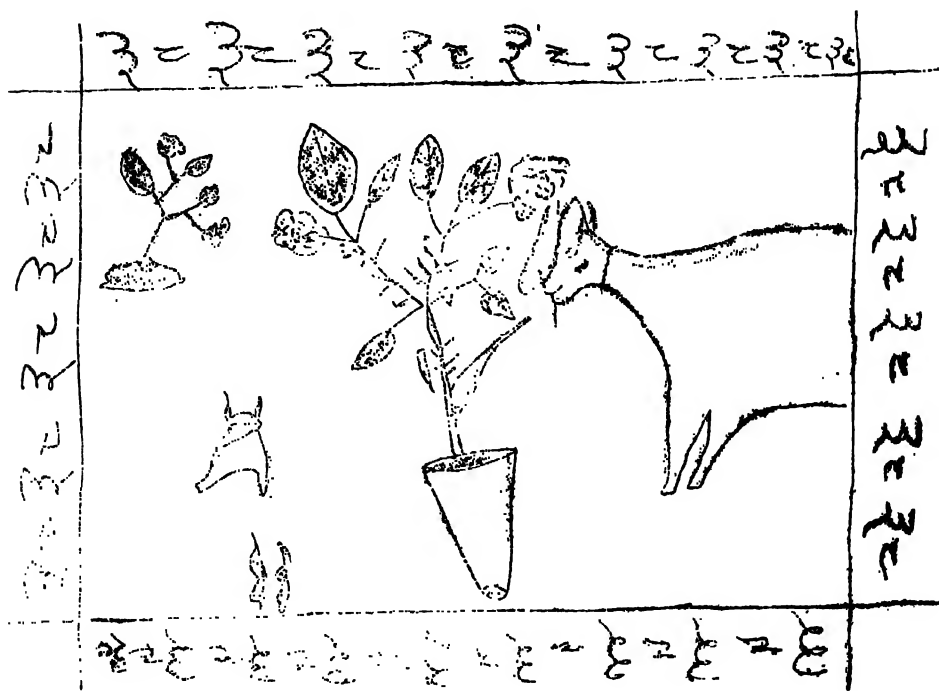
Broadly speaking, we can say that there are two distinct planes of thought:—(1) Logical thinking and (2) Unconscious thinking. Logical thinking keeps the individual in touch with the external reality; it is objective in nature and the individual is fully aware of the object to be attained. Unconscious thinking, on the other hand, is out of relation with the external reality. It is indirect and is incommunicable by means of ordinary language. It however expresses itself in the form of dreams and phantasies and uses imagery and symbolism as its means of expression.

As the child grows up, he makes effort to learn to adjust himself to reality. In this attempt he has to sacrifice several of his cherished desires. These desires, however, never disappear from his life but always lie in abeyance and wait for expression. To the conscious mind the desire seems to have been withdrawn but it seeks every opportunity to express itself in different forms. Phantasy is one of the forms in which the repressed wish is thus expressed.

In connection with the difference between the conscious and the unconscious thinking, it is often said that the former is directed, whereas the latter is undirected. From this we should not be led to think that the unconscious thoughts flow at the mercy of mere chance. There is a law in unconscious thinking, as there are laws governing conscious mental processes. The phantasies are 'directed', though not consciously; the process goes on in an unconscious way, as the source of phantasies lies deep in our emotional nature.

In order to understand this deeper emotional nature as expressed through phantasies or dreams, we have to understand the language of symbols through which these phantasies express themselves. In early childhood symbolisation is used for two different purposes, though the process in both is the same. The child may find an idea too complex or too difficult for direct expression and then he uses a symbol. But there is still another purpose for which symbolism is used. Here the ideas are not necessarily difficult for expression, but owing to repression they cannot

be directly expressed, and are disguised in symbols. In such cases the symbol alone becomes conscious and is developed in the phantasies or dreams. The ideas seeking expression remain, for the most part, hidden in the unconscious.



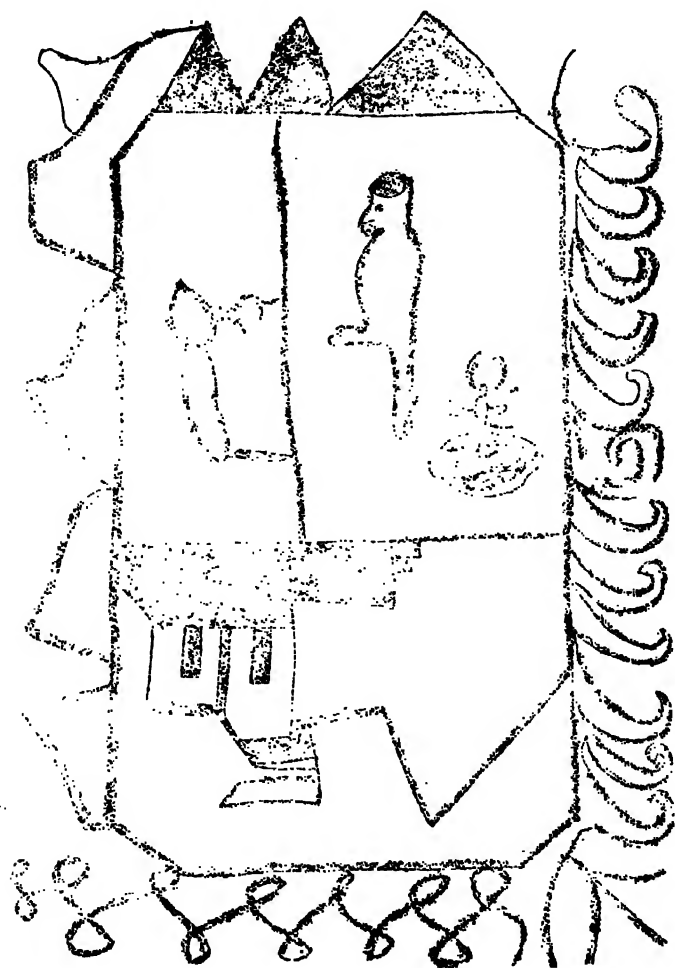
Drawing No. 14. See page 215.

An attempt has been made in this paper to study the child's deeper emotional nature from his phantasies as expressed through his free imaginative drawings. Before I proceed further I may mention that art is like a dream. W.R.D. Fairbairn in his 'Prolegomena to a Psychology of Art'* has very aptly brought out the analogy between dream-work and art. The primary function of the dream is to provide some means of expression for the repressed urges of the dreamer, and by relieving their pressure to reduce the psychical tension. Art work, which must be essentially regarded as unconscious, serves the same purpose in the mental life of the artist. There is a 'manifest content' and a 'latent content' in the art work as there is in the dream work. And just as the complexity of the dream-work depends upon the relative strength of the repressed urges and factors responsible for repression, so also is the complexity of the art work similarly determined.

* British Journal of Psychology, Vol. XXVIII, January, 1938.

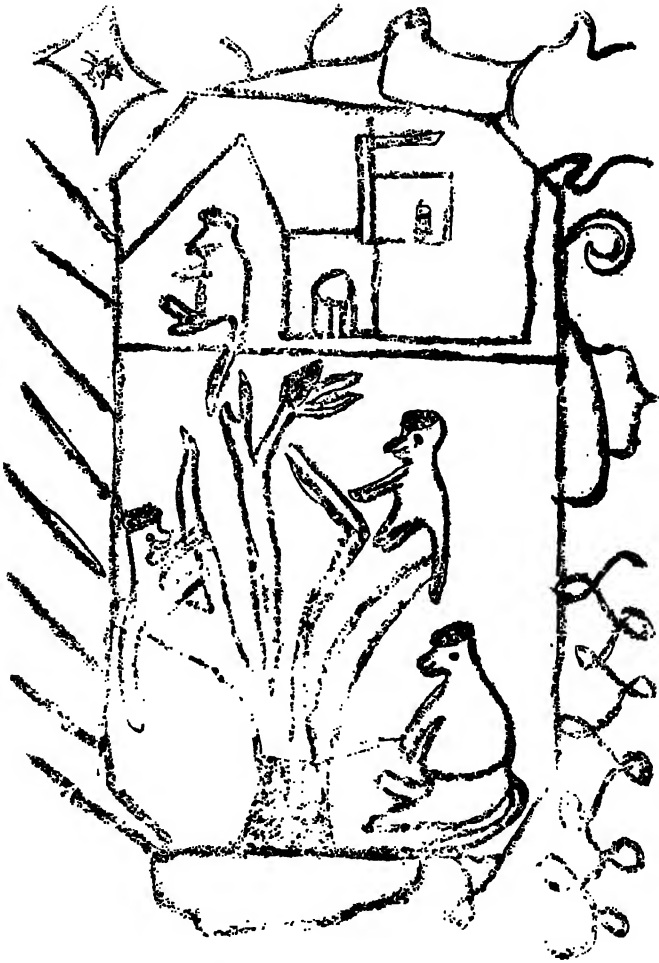
Material

There is a period for hand work and free drawing in the time table of the school where I serve as the Headmaster. The children come every day in the handwork room and are provided with drawing paper and coloured pencils. The teacher avoids making any kind of suggestion and lets the children draw for the sake of fun. Sometimes one sheet of drawing is finished within a single period and sometimes the same is continued for two or three days. After the child has completed the drawing, the art teacher asks him to write down on the back of the sheet the theme of his drawing. When the child cannot express properly through language, the teacher makes his own notes. Only those parts are noted which strike as prominent and important to the child.



Drawing No. 46. See page 215.

The following is the description of the drawings of a nine-year old child who is studying in the Preparatory Class in our school. The drawings have been arranged datewise, *i.e.*, as the child produced them day after day.



Drawing No. 47. See page 216.

Dates.	Contents of the drawings.
(1) 26.1.38.	(i) Sugar-cane and flowers. (ii) Maize. (iii) Scorpion and Maize fields. (iv) Flowers, Parrots and Trees.
(2) 28.1.38.	Two gardens and a tree.
(3) 28.1.38.	A garden—A table-stand on which two flower pots are placed. There are some trees and grass. The sun is rising.
(4) 17.2.38.	Roads, flowers and trees.

Dates.	Contents of the drawings.
(5) 19.2.38.	Five hills—the sun is rising from behind two hills. A ship is sailing in a river which is flowing from one of the hills. Two trees on the tops of the two hills.
(6) 15.3.38.	A lion is going out for a hunt and a cub accompanies him.
(7) 31.3.38.	Bushes, six hills, a house, a river and the sun rising from behind two hills.
(8) 14.4.38.	Three hills. Rising sun. Birds are flying.
(9) 13.7.38.	House, Pot, Trees, Flowers, Aeroplane.
(10) 14.7.38.	Three trees of which two are of the same shape though of different sizes, and one is of a different shape altogether. Necklace on the border of it.
(11) 27.7.38.	A house and two trees on both sides—one big tree and another small tree.
(12) 15.7.38.	Five hills near a lake (of which two are left uncoloured). A river is coming from one of the mountains and falling into the lake. There is a boat in the water and also three fishes of three different sizes in it. On the border a tiger is going to eat some fruits.
(13) 16.7.38.	A house, grass, flowers, tree, game. Birds are flying.
(14) 19.7.38.	A rose tree. A small figure of a Rakshasha (giant). Two calves are coming to eat the rose plant but the thorn has struck their mouths and so they are bleeding.
(15) 20.7.38.	A lion living in a cave. There is a rose tree. It is very late and the night has approached. A stream is flowing. The sun is rising from behind two hills.
(16) 21.7.38.	Two trees and it is night. It has become very late and the sun rises.
(17) 21.7.38.	The lion goes out for a hunt. He doesn't return for a long time. He has broken one tree and he wants to break another, but he cannot do it. A cub is shown inside the cave.
(18) 2.8.38.	There is a tree. It is a very old tree. A peacock lives on the top of it.
(19) 3.8.38.	There is a house in the jungle. A Rakshasha lives in it. There is also a Rakshashini (female giant) who lives there with her child.
(20) 5.8.38.	There is a forest and a ghost is standing. A tiger is coming from behind the ghost and the cat.

Dates.	Contents of the drawings.
(21) 6.8.38.	There are three hills. The sun is rising from behind two hills. The lion is drinking on the second hill. There is a lake below the hills. A stream is flowing from the hills. There are two lotus flowers in the lake.
(22) 6.8.38.	A panther and a well. On the well a bucket is lying for drawing out water. Some kites are in the sky. Some mountains also.
(23) 9.8.38.	A cat, a lion and a tree. Some mountains on the border.
(24) 10.8.38.	A tree from which a swing is hanging. A panther is sitting under the tree. The forest is very thick.
(25) 12.8.38.	A house with some windows in it. There are two trees—one in the front and the other at the back. A fox is sitting under the front tree.
(26) 16.8.38.	A temple on the top of a mountain. At the foot of that temple there is a tank where the lotus plants grow.
(27) 19.8.38.	There is a hill and water is flowing from it. An aeroplane is seen flying. There is a big tree. Two parrots are sitting on the tree facing each other. Some bushes are seen near the hill.
(28) 23.8.38.	A huge tree.
(29) 23.8.38.	A chariot is going towards the temple and a tree is seen near the temple. A man is driving the chariot.
(30) 24.8.38.	Five hills. A river is flowing from one of the hills and falling into a lake. There are fish in the lake and a crocodile is eating up fish.
(31) 25.8.38.	Sky ; cow ; a temple and man in the temple.
(32) 26.8.38.	A man is driving a chariot.
(33) 27.8.38.	There is a giant and a man is holding the tuft of his hair. There is also a house.
(34) 30.8.38.	There is a temple ; a bird and a peacock. There is a house ; two bullocks and a panther are behind them.
(35) 31.8.38.	Water tap. A tree and a tub are near the tap. Water coming through the tap and falling into the tub.
(36) 31.8.38.	Mountains ; the sun is rising. Lotus flowers.
(37) 1.9.38.	A big tree and four small trees on it. Some eggs of birds are also seen on the tree. There is an elephant on the top.
(38) 17.9.38.	Fish. A tiger and an elephant.
(39) 17.9.38.	There is a cow and a tree and a man sitting in the corner.
(40) 18.9.38.	A tree ; a cow, an elephant. Four birds. A temple and a house are also shown.

Dates.	Contents of the drawings.
(41) 20.9.38.	Cow, grass, water, lotus plants, tree and the sun. Elephant on the border.
(42) 27.9.38.	There is panther, house, rabbit, cow, lion, elephant, butterfly, tree, cup with spoon, temple, rat, butterflies, bird, aeroplane, house, mountain, flower, carrom board, cup, mouse and lotus.
(43) 29.9.38.	The sky, ghost, and an elephant.
(44) 2.10.38.	Two ghosts, an elephant, the sky and a tree.
(45) 4.10.38.	Lion, tree, horse, elephant, rabbit, leaf, donkey, butterfly, man, ghost, tree, bird, peacock, donkey, aeroplane, scorpion, rat, glass, cup, hill road, maize, mango, orange, rose.
(46) 26.10.38.	A house. A scorpion is coming out. A monkey is sitting and a man is also shown (one leg of the man has been placed in the position of his genital which thus looks very prominent).
(47) 27.10.38.	A monkey is sitting on the top of a house and three monkeys on a tree near the house.
(48) 28.10.38.	A house with a flag on it. The boy is going out to the market to buy something for himself. The house is his own.

(Only three of 48 drawings are reproduced here for illustration.)

Analysis of the Material

If we examine these drawings even in a casual manner, we will find that they are of two types—one, in which there is a connected story of events, and the other, in which ideas are expressed in a disconnected manner. We shall take here only the former group of drawings for analysis as they are easy to interpret. In many of these drawings we find that the one object round which several phantasies are woven is a lion or a tiger or a panther. These animals feature in as many as 13 drawings out of the 50 collected. These ferocious animals are shown as doing some injury or harm to some plants or animals or things. For instance, in one of the drawings (17) the lion went out for a hunt. He did not return for a long time. He broke one tree and wanted to break another but he couldn't do it. And in another drawing the lion came running from the jungle and entered a house. There were four tables in the house and below each of them a water pot was lying. The lion jumped on one table and was attempting to jump on another, but in the meanwhile he looked at the cow on the other side.

The meaning of these and similar phantasies will be clear to us if we remember, firstly, that owing to repressions the child does not directly express such of his ideas as are tabooed by society but under the disguise of symbols. Secondly, most of the phantasies of childhood are woven round the family situations because these involve the deeper emotional life of the child.

In the phantasies mentioned above, a lion, a tiger or a panther is evidently a symbol. What idea can it symbolise for the child? The two characteristics which stand out prominently in our minds about these beasts of prey are their ferocity and their extraordinary physical strength.

The only person in the family who could, in the phantasies of our childhood, be compared in physical strength with these animals is the father. In psychoanalysis of adults we often find the idea of the father symbolised by lion or tiger. If we accept this interpretation of the symbol, then the meaning of these phantasies becomes clear to us. The "two tables" and the "two trees" are the two brothers. The child has one elder brother. The lion has broken one tree and has jumped on another table, meaning thereby that the elder brother has already been killed by the father. This is his wish, but he is afraid that he will have to be the next victim. The lion turns back and looks at the "cow," the symbol for the mother, from whom he probably seeks shelter and protection against the father. The child thus expresses his fear of the father in these phantasies and is thereby perhaps trying to adjust it to his reality. Expression of an emotion in the form of a phantasy even in a symbolical way has a cathartic effect.

In my conversation with the child about his drawings I found out that he had seen lions, tigers and panthers several times in the zoo. He told me further that he was afraid of several other things such as scorpion, crocodile and ghost. On my further inquiring as to whom he was most afraid of in the family, he said that he was afraid of the mother who often beat him. He added that he was not afraid of the father as he never punished him. It was only at a later stage that he remembered that the father had also beaten him on several occasions and he was afraid of him too.

The father of this child is a strict Arya-samajist and has brought up his children in strict and religious atmosphere and has had a very rigid attitude towards sex. The child is docile towards grown-ups who appear to him to be able to exercise authority over him; but towards adults who do not come in touch with him, or those who, he feels, will not enforce authority, he tends to be contra-suggestible.

If we believe that the phantasies are the outcome of our emotions, then considering the child, the home and the father, we have no alternative left but to accept that the lion in the phantasy stands for the father. There will however be not much dispute about the "two tables" and the "two trees" representing the two brothers. It is interesting to observe that the child selects the number "two" not only in these phantasies but in several other drawings described above.

Another interesting phantasy (35) which corroborates the above interpretation is of the tree from which a rope is hanging and the panther is sitting under the tree. The swing reminds the child of the swing in his home which he is allowed to use only on holidays. Another phantasy (30) in which the crocodile is eating up the fish in the lake also expresses the same fear towards the father, the 'crocodile' representing the 'father' and the 'child' representing one of the 'fish.'

In these phantasies the child accepts the authority of the father and is also convinced of the fact that he will be put to death for making any encroachments on the father's rights. The child tries to find a solution in different ways to this situation. At one time he joins hands with the father when in one of the drawings, (6) the lion goes out for a hunt and the cub accompanies him. At another time in the drawing (33) he thinks of taking revenge on the father by making a man hold the tuft of a giant's hair. The mythical giant represents the father of the child.

The child further expresses his feeling of guilt in the drawing (14) of the "two calves" who go out to graze the rose tree and are struck by the thorn at the mouths which are now bleeding. Bleeding is the result of eating the 'forbidden fruit' and is the proper punishment for feeling incestuous desires towards the mother. The rose tree symbolises the mother. The child does not forget to draw a small figure of the Rakshash—the father who is probably responsible for causing this bleeding. The two calves, the two brothers, make a sort of alliance (it is interesting to observe the way the child has joined the two calves for a common goal.) This phantasy compares very favourably with the phantasy (32) where 'two' bullocks are going and a panther is behind them.

Another phantasy (11) which expresses fear of the father's genitals is the one where a scorpion is shown coming out of the house. No doubt is left in our minds that the scorpion represents the male genital if we closely examine the figure of the man which the child has drawn by the side of the scorpion. The male figure appears to be standing on one leg. The other leg is shown in place of the genitals. It cannot be supposed that this is only an accident. A highly imaginative and also intelligent child

like the one whom we are discussing here could not make such a great mistake as to put a leg in place of the genitals. The child shares the same bedroom with the parents and it is not improbable that this drawing of the scorpion coming out of the house is a representation of the parental coitus which the child may have witnessed.

There are several drawings in which the relationship of the child with the other members of the family is expressed, *e.g.*, in one of the drawings (10) three trees are shown of which two are of the same shape though of different sizes, whereas one is of a different shape altogether. It looks like a picture of his two brothers and one sister who is older than him. The child has one elder brother and one sister. Similarly in another phantasy there is the picture of a big house in the centre, and two trees, one smaller than the other, stand on either side of the house. The 'house' probably represents the mother and the two trees represents the two brothers. The child reported that they often sleep in this position in the home.

In another drawing (12) five hills are shown near a lake of which two are left uncoloured. A river is coming behind one of the hills and falling into a lake. The sun is also seen rising from behind two of the hills. There is a boat in the water and three fishes of different sizes. On the border a tiger is shown going out to eat fruits. Would it be very presumptuous if we believe that these three fishes are the two brothers and one sister and the lake symbolises the mother? The child has been very careful in grading the sizes of these three fishes. In another drawing (19) he draws a house in a jungle where lived a Rakshash (giant), Rakshashi (giant's wife) and their child. Then again, in one of the drawings (25) a house is shown with some windows and two trees, one in front of the house and the other at its back. A fox is sitting near the front tree. The house with openings symbolises the mother; the trees are the two brothers and the fox is probably the sister. The same idea is expressed in another phantasy, (47) where only one monkey is sitting on the top of the house and three monkeys are sitting on the branches of a tree. The single monkey sitting on the top of the house is probably the father and three monkeys sitting on the branches of the trees, which stands close to the house, are the two brothers and the sister.

There are a number of other drawings which I have not taken up for analysis in this paper. I cannot however pass without mentioning some of the common elements which appear not only in the drawings of this child but in the drawings of most other children. These are hills, river and the rising sun. From what I have seen of the drawings of this child, as also of other children, I am inclined to think that the hills represent

the human figures. A river is very frequently shown flowing from one of the hills. This probably represents the flow of urine which to the child's mind appears to be a feat of magic. And the rising sun, which is mostly shown only half visible and half hidden behind the two hills, probably symbolises the birth phantasy.

Conclusions

An approach to the subject of the unconscious requires a special skill for understanding the complexities of the human mind. Those who are familiar with the findings of psychoanalysis will bear me out that the symbolical representations which appear in the drawings are the most common ones found in the analysis of adults. Then again, I think that the interpretation I have given here fits very well with emotional life of the child and his place in the family.

There is one general characteristic about these drawings which may be mentioned here. It is the persistence with which the unconscious expresses itself through these phantasies in drawing. One day the child starts with a certain idea and the phantasy is only half developed ; on the following day or days, the same idea is further developed. This corroborates the fact that these drawings are not the chance products of the imagination of the child, but they express his deeper and unconscious urges which are always forging ahead for expression.

Drawings of a few months open out a highly significant chapter in the emotional life of the child, and show the conflicts and anxieties through which he is passing. Here is an unexplored field for research and investigation, and we have no doubt that the labour put in here by psychologists and educationists will be amply rewarded.

UDAIPUR.

Some Experiments on Aesthetic Appreciation

N. S. N. SASTRY

I. Introduction

Aesthetic appreciation has always been a favourite study of philosophers and psychologists alike. Naturally it has been of great interest to the philosopher, because an understanding of the true nature of such an experience would lead to an assessment of the value of beauty. To the psychologist it is of interest, because aesthetic experience demands analysis and explanation.

The paper sets forth some of the experimental results obtained in connection with aesthetic appreciation, specially with reference to the appreciation of music and painting.

II. Historical

Nearly two thousand years ago, Bharata enunciated the famous 'Rasa' aphorism * in his work 'Natyasastra'. According to this aphorism, the blending of the primary emotions, and of the secondary and derived emotions (which are more of the nature of feelings than emotions, and the overt behaviour patterns under an emotional stress, give rise to the peculiar relish known as 'Rasa.' This 'Rasa' is a transformed emotion and is of the nature of bliss.

Almost all the later writers on aesthetics in India have accepted Bharata's aphorism and agree with him in the main. All of them recognise that in aesthetic enjoyment there is no consciousness of any emotion as such. Somehow or other, the emotions are loosened off their moorings in instincts and become transformed.

In the West, ever since the time of Socrates, Plato and Aristotle, philosophers have tried to grapple with the problem. It may be generally said, the predominating philosophical tendencies of the age are reflected in the aesthetic theories propounded by these people. All these philosophers may be broadly grouped into three. Plato represents the view that beauty

* Bharata: circa 2nd century B. C.

• Vibhava anubhava vyabhichari samyogath rasa nishpatthihi'—
Natyasastra—VI 62.

is a thing in itself and not an attribute of another thing. Kant and the Intuitionists accepted and elaborated this view. According to Aristotle, beauty can be analysed into its elements. Herbart, Lessing and the Formalists enlarged this view. Schelling and Hegel held the view that the intelligence of the artist produced beauty.

Modern theories also are many, but in the main they support the ancient writers. Croce started his theory of 'free-expression,' which temporarily attracted a good deal of attention. The anti-thesis of 'free-expression' was the theory of Formalism advocated by many writers. The theories of empathy and of psychic distance require special mention, since both, though valid, are only half-truths.

Much experimental work has been done ever since the time of Fechner in 1871. In regard to the individual choice of form, it has been found that no shape or form is necessarily pleasing. The effect of colour varies according to circumstances, variation being due to age, sex, saturation, hue, 'weight,' position area, 'warmth' as well as to associations. Harmony, balance, and rhythm are valid factors, but liable to vary according to individual opinions. Efforts have been made to build up scales for the measurement of aesthetic appreciation, though the physiological correlates (*i.e.*, pulse beats, breathing and psycho-galvonic reflex) that have been measured are neither suitable nor concomitant.

III. *The Problem*

The problem taken up for present investigation consists of three parts : (1) to record the physiological changes that accompany aesthetic experience, (2) to obtain and analyse introspections with a view to discover and indicate the mental factors conducive to aesthetic appreciation, and (3) to evaluate individual preferences with a view to form a scale.

IV. *Plan and Procedure*

Seven selections * from Indian musical compositions were used as the stimuli in the 'music experiment.' The selections were all recorded music and the series contained instrumental as well as vocal music. The selections were played on a gramophone. The subjects were instructed to listen to the music that was being played in their usual way of listening to music. After the selection was played, the subject was asked to (1) say if the feeling was

* The seven selections used are:—I. Vocal music: (1) Nagnomou by Musuri Subramony Iyer, (2) Ragasuddha by Kittappa, (3) Namasthe by Ramanath Sastry, (4) Alakala by Araikudi, (5) Tare Yamuna Kinare by Indu Bala; II. Instrumental: (1) Flute—Paranmukha by Palladam S. Rao, (2) violin—Junjuti raga by Mysore Choudayya.

pleasant or unpleasant, (2) rate the degree of pleasantness or otherwise on a given scale of 10 points, * and (3) describe as fully as possible the mental factors in the experience, such as associations, imagery, etc., *i.e.*, whatever was in the consciousness while the experience lasted.

While the subject was listening to music, tracings of the plethysmograph and the pneumograph were taken on a smoked paper. Lehman's plethysmograph was used in conjunction with a Marey tambour. Sumner pneumograph was attached to the chest and the expansion and contraction of the chest were recorded with the help of a Marey tambour. Before the actual experiment began, the tracings of the normal pulse beats and respiration were obtained, since these were to be the basis of comparison later on. The psycho-galvanic reflex was also measured in the usual way by using a galvanometer in conjunction with the Wheatstone's bridge arrangement.

After each selection was played over, the kymograph and the galvanometer would be switched off and the subject's report taken.

The same procedure was adapted for appreciation of paintings also. There were 10 paintings, reproductions on variety of subjects. All of them were coloured reproductions. †

No one particular order of presentation was adhered to in either of the cases. This is important, since the order of presentation might tend to influence the records.

As far as possible, the laboratory atmosphere was kept in the background and the subject put at ease, so that the most natural reaction could be recorded. There is reason to believe that the experimenter succeeded in this, since this was subsequently confirmed by the subjects who told that they were not particularly conscious of the artificial condition of the experimentation.

Some time after, the subject was asked to rank the pictures for their aesthetic appeal. The pictures were all spread before the subject and he was asked to pick up the best one, *i.e.*, the most pleasing one; then, the most pleasing amongst the remaining, and so on, until the list was exhausted. This ranking method (*i.e.*, selection by elimination) helps us to arrive at the

* Only verbal description of the scale was given. 10 points to be given if the experience was extremely pleasant—the highest experience. 1 point to be given if the feeling was the ugliest the worst possible experience. 5 points would indicate an indifferent neutral attitude—neither pleasant nor unpleasant.

† The 10 paintings used are :—1, The Day-break or morn, (2) The Taj, (3) The ideal, (4) The Temptress, (5) The End of the journey, (6) Abhimanyu, (7) Day-dreams, (8) Shakuntala, (9) Rose time, and (10) Prithviraj and his brother.

rank of each of the pictures for its aesthetic quality. This could be done only in the case of the pictures.

V. Results

Ten subjects took the experiment. The gentlemen who acted as subjects were thoroughly reliable, highly educated, capable of accurate introspection. It is inevitable in an experiment on aesthetic appreciation that there should be a selection of subjects. It is important to select proper persons, if the introspections are to yield proper and reliable information.

Thus, for each subject, we have the following informations : (1) Volumetric changes of the fore-arm; (2) Heart changes; (3) changes in respiration; (4) Psycho-galvanic changes; (5) 'Affective scores;' * (6) Ranks given to the pictures; and (7) Introspection.

In the case of the first three informations, the normality in each was used as the standard of comparison. For example, the normal volumetric curve is almost straight, smoothly flowing. This tendency in the shape for the curve is compared with the tendency in the flow of the curve while listening to music or seeing the picture. The normal heart-rate varies from individual to individual. The average heart-beat in normal conditions is about 70-75 per minute. The average heart-beat during the period of listening to music or looking at a picture is compared with this standard. In regard to respiration, changes may be expected both in the rate and the amplitude. The normal rate, as indicated in each case (*i.e.*, about 18-20 times a minute) is used as the standard of comparison.

In regard to the measurement of emotion with the help of the psychogalvanometer, a few facts must be borne in mind. It is alleged that the galvanometer measures the intensity of emotion, since it is supposed that the galvanometric indication of the lowering of resistance of the human body is perfectly correlated with the felt intensity of emotion. We have presumed that the galvanometer indicates presence of emotion in the present investigation. The lowering of resistance, as indicated by the galvanometer, was converted to percentage fall on the initial resistance. Thus the galvanometer scores are scores representing percentage fall on the initial resistance. There is always an initial drop in the resistance, as soon as the stimulus is presented to the subject. Since this does not indicate emotion but is presumably caused by the nerving up of the subject, this has been omitted in the calculation. The other indications occurring in the course

* The term 'Affective score' refers to the degree of pleasantness or unpleasantness as indicated by the subject.

of an experiment are totalled up and the total emotional intensity for each stimulus is thus worked out. Sometimes, there would be steady increase of resistance. This is not ordinarily taken as significant, since it is the decrease of resistance that is supposed to be correlated well with the felt intensity of emotion. No attempt is made in this paper to account for it.

The 'affective scores' are either for pleasantness or for un-plesantness. Any score above five would mean pleasantness.

Lastly, we have introspection. This is the most valuable source of information. All the other data can at best be taken to be confirmations and supplementations of introspection. Analysis of introspection reveals that the aesthetic experience is made up of a mass of kinaesthetic and organic sensations, different types of imagery, numerous associations as well as intellectual appreciation.

We might discuss the results under various heads:—

I. Volumetric changes.

In 8 cases there was an invariable drop in the course of the curve at the beginning of each experience. This indication of the decrease of the volume of the fore-arm is almost immediate after the presentation of the stimulus. In certain cases the drop is immediate and in other cases it is more gradual. Later on, the course of the curve is either normal or low or high. In 102 out of 170* records, the subjects have reported pleasant feeling and the course of the curve has been high. King has reported similar results. But there is no correlation between low course curve (indicating decrease in volume) and unpleasant feeling. Definite emotional excitement is sometimes indicated by sudden upward rise of the curve.

The initial drop is probably indicative of the phenomenon of attention, as has been suggested by some investigators, or due to nerving up to the task on the part of the subject. This initial drop coincides with the initial drop in resistance indicative of attention. A passive and relaxed, contemplative mood is characterised by a smooth and normal course of the curve. Abrupt changes in the level have indicated sporadic emotional excitement though it is not certain that the course of the curve indicates emotion. But the general agreeable feeling tends to raise the level of the course.

II. Heart-rate changes.

The heart-rate changes in the normal period, when compared with the changes in the period of aesthetic appreciation, reveal some interesting

* There are 17 stimuli presented—10 visual and 7 auditory: and there are 10 subjects. So, there are 170 records available.

factors. Generally, there seems to be a slight increase over the normal rate in the 'aesthetic' period. It is found to be so in the case of 117 records out of 170. Presence of excitement seems to be indicated by quick heart beat, the increase being as much as 10% over the normal. During periods of relaxation, calm and pleasant feeling of a (reverie) kind, the change in the heart beat is not markedly above the normal. In 48 records out of 170, the heart-rate was definitely retarded in a passive type of feeling, the retardation being 8% of the normal.

The heart-rate changes appear to be in no other way significant.

III. Respiration.

The changes in respiration compared with normal breathing, are both in regard to the rate as well as the amplitude. There is a tendency for accelerated rate to be correlated with shallow respiration. There is an average increase of 8% in the respiration rate of the 'aesthetic period.' It is of interest to note that in the case of subjects who were keenly attentive to music or painting as such (these subjects do not report many irrelevant associations) the increase in the respiration rate is invariable. Sudden arresting of attention is sometimes indicated by holding of the breath. There is no change in passive, relaxed experiences. Changes in respiration seem to indicate, at least in 56 cases out of 170, factors like pause, retard, acceleration and such other qualities of the tempo, the music.

Pleasantness and un-pleasantness are generally indicated by changes. In a few cases pleasantness is indicated by acceleration. In some subjects unpleasantry is indicated by acceleration. Acceleration, as indicative of pleasantness or not, seems to be an individual affair. But the subjects tend to fall into two groups:—(1) Those in whom pleasantness is related to acceleration and (2) those in whom un-pleasantness is related to acceleration. In the latter case pleasantness is not related to retardation but to normality.

IV. Psycho-galvanic changes.

In regard to the psycho-galvanic changes, some very interesting results have been indicated. The total of the percentage fall of resistance of each stimulus for each subject was worked out. On the basis of the total emotional intensity thus arrived at, it was not possible to predict pleasantness or un-pleasantness of experience in most cases. The high emotion registered does not correlate with felt pleasantness. Neither does low emotion correlate with unpleasantness. In the majority of cases, however, pleasantness or aesthetic joy has gone with low emotion. This seems to be an indication of an attitude of relaxation, which again goes well with pleasantness of feeling. In a tense attitude, there is indication

that the feeling of pleasantness is due to slight excitement experienced. This is true only in 51 records or 30% of the cases.

The average co-efficient of correlation between high P.G.R. and subjective report of pleasantness or subjective ranking of pictures is $-.09$ and $-.12$, showing that high P.G.R. cannot be taken as indicative of pleasantness of experience.

V. 'Affective Scores'.

The average affective score for each picture or musical selection yields the following ranks :—

Pictures :	1. The Morn	...	II
	2. Day dream	...	III
	3. Temptress	...	VII
	4. Abhiman	...	VI
	5. Ideal	...	I
	6. Prithviraj	...	IV
	7. Shakuntala	...	X
	8. Rose time	...	IX
	9. End of journey	...	VIII
	10. The Taj	...	V
Music :	Namasthe	...	VII
	Nagumomu	...	IV
	Indu Bala	...	II
	Raga sudha	...	III
	Alakala	...	V
	Flute	...	VI
	Violin	...	I

The group as a whole evaluates the several items for their capacity to please in the way indicated in the above list. The individual divergence from these standards shows the conformity or not of the individual with the group. The divergence varies from a correlation of $-.32$ to $+.86$. It is possible to analyse the scores factorially and one might try to find out if there are any two particular factors comparable to Spearman's G and S. The result of such an attempt will be reported later.*

* The author of this short note, in a contribution to the Psychology section of the Indian Science Congress, 1940, and in another paper contributed to the Indian Statistical Conference, 1940 has tried to show that factor analysis holds good in the aesthetic judgment of single colours. The colours or the stimuli have been treated as if they are the subjects taking the test and the test scores as the evaluation of the several subjects

There is a high correlation between these affective scores and the ranks. This not only shows that the reliability is high but also that these scores are better than the physiological indications taken individually.

VI. Ranks.

It has been found that there is a very high correlation between the scores obtained, when the paired-comparison method was used, and when the serial ranking method was used. This is the justification for using the serial method now.

The average rank for each stimulus corresponds very favourably with corresponding ranks obtained on the basis of affective scores. This suggests that both the scores have been given solely for the pleasing (affective) quality of the items. The psychological criterion that is indicated in both these scores thus seems to be much more reliable than the physiological indications.

VII. Introspections.

The most important information comes from the analysis of introspections. Frequently, moods have been reported by the subjects, these being common in musical experience. Imagery and associations are more markedly present in musical experience than in 'picture' experience. Music seems to succeed better in giving rise to moods and other kinds of purely subjective reactions. Pictures seems to tie down the attention to the details of the object. Though this is the general feature, there are many individual variations.

(a) Imagery

The most prominently mentioned types of imagery are the visual and kineasthetic. Sometimes, visual imagery seems to have been directly responsible for enjoyment of music. Visual imagery seems to be present in all the observers, though its function is not always the same. In 6 out of 10 cases it has helped enjoyment. 2 subjects report that the presence of the imagery definitely hinders aesthetic enjoyment.

Rarely has visual imagery been reported in connection with enjoyment of pictures. When it is present, however, the picture, *i.e.*, the stimulus becomes secondary, the image occupying the centre of attention. Kineasthetic imagery is present in both cases. Very vivid kineasthetic imagery

of the several stimuli. In spite of the fact that the tetrad criterion holds good and that the tetrad differences distribute normally, there is some doubt as to the number of factors involved. There may be more than two factors involved or two groups of factors, or one factor and another group behaving like a factor. Further discussion on this point is reserved for the present

might help or hinder aesthetic enjoyment. One subject reported that 'he felt being slowly lifted and he floated in air in a gentle rhythmic flow.' The experience was extremely pleasant.

(b) Actual motor reactions

It was also noticed that in many cases there were actual motor reactions like swaying the head sideways, etc. There is room to believe that not in all such cases the experience was highly pleasant and aesthetic. This is borne out specially by the subjective judgment. Motor reactions play a minor part in determining the high pleasurable quality of the feeling tone attached to aesthetic experience.

(c) Associations

Pleasurable associations which are the product of past experience have been frequently reported. 'The present stimulus tends to rouse the original experience together with the accompaniment of original imagery and emotional memory. The aesthetic enjoyment is not entirely due to the present stimulus.

Most of the associations are purely individual. But in some cases there seems to be an agreement amongst all the subjects in regard to the nature of the association, as when a tune suggestive of dance is played. The influence of association does not remain constant. Since most of the judgments due to associations are often subjective—associations seem to influence the judgments sometimes positively and sometimes negatively.

(d) Types or attitudes

The analysis does yield certain groups of attitudes. But these are not very definite nor are there only four, as suggested by Bullough and others. At best such a grouping is bound to be artificial. All subjects reveal, every type some time or other.

Corresponding to the objective type of Bullough and Valentine, there are instances where the reasons given refer to the objective content of the stimulus like tone, colour, line, form, etc. There is a tendency to be critical. Emotion is not predominant in such instances.

There is another group where references are to the effect produced by the stimulus. Colours may be soothing, tune may be lulling. In cases where aesthetic pleasure is reported, a calm, serene tempo is always referred to. Here again the consciousness of the supposed effect of the stimulus influences the affective tone in diverse ways. Cases are reported when the suppressed effects are a source of hindrance to the enjoyment.

Sometimes the stimuli are given certain characters and described as if they possessed human qualities. 'This picture holds me at arm's length ;'
'This tune hugs me'

There is another group which might be designated as 'the synthetic group.' Here are instances where there is a marked tendency to view the stimulus as a whole—as a gestalt. The preference is for the resultant relationship of the elements taken together. In contrast, there is a tendency to break the manifold into elements. Even here though the preference is for the manifold, the elements are sought to provide a basis for evaluation.

It may be suggested that there are no pure types as such. There are, of course, attitudes. Hence critical attitude would be a better term than critical type.

VI. *Summary and suggestions*

The aesthetic experience manifests itself in certain physiological changes and in certain psychological changes. The relationship between the two is not clear.

The course of the plethysmographic curve, specially in the upward direction, seems to be indicative of pleasurable experience.

The heart-rate generally increases, while there is aesthetic enjoyment. The increase specially is indicative of excitement. When pleasurable feeling is high, the heart-rate becomes almost normal.

In aesthetic experience, respiration shows a slight increase. Pleasantness or un-ppleasantness seems to be indicated by increase or decrease.

Intense emotion is not indicative of high aesthetic pleasure. It would appear that intense emotional excitement is a hindrance to real pleasurable experience characteristic of aesthetic appreciation. Low emotional intensity need not mean absence of pleasure, but sometimes it is definitely associated with pleasure.

The individual's rating of stimuli for affective quality is generally indicative of the aesthetic quality of the stimulus. The aesthetic value seems to be dependent upon the object as well as the subject. The objective quota is represented by the correlation coefficient of the affective scores and 'ranks' of the individual.

Introspection is interesting and affords a clue in regard to the nature of aesthetic experience. Moods, imagery and associations form the bulk of introspective reports. Imagery influences the enjoyment, both positively and negatively. Visual and kinaesthetic imagery are most common. There are also real and imagined motor reactions largely influencing enjoyment. Associations of varied types are present in all cases and the type or attitude reveals the aesthetic standing of the subjects.

Abstracts

Some Factors in the Genesis of Interest in Psychology—By R. C. OLDFIELD. (*British Journal of Psychology*, Vol. XXX, Part 2. October, 1939.)

This is a study of how some of the noted psychologists of the immediate past as also of the present, developed interest in psychology. Oldfield erects a concept of 'interest tendencies' by which he means, "tendencies to perform certain kinds of operation upon psychological material—to treat material in a certain way," and postulates two specific interest-tendencies, the empiric and the systematic. The first he defines 'as a propensity to treat material in its aspect of relating to experimental fact,' and the systematic, 'as a propensity to treat material in its aspect of possessing internal structure.'

There is a surprising prevalence of scientific interests in the psychologists proper and even among those whose contributions to the subject have been mainly of a philosophical nature. Bain, L. Morgan, James Drever, Myers, McDougall and others had varied scientific interests and education in their youth. Even Ward 'sowed a few youthful wild oats in natural science' in his later writings. Binet, Janet, G. E. Müller, Myers, Spearman, all had either 'excessive' or mild interest in philosophy. An interest in philosophy is not uncommon even among those psychologists whose original vocation ranged from soldiering to medicine (Binet, Lotze, etc.) and mining (L. Morgan). Some (as, e.g., Höllding, Baldwin) attribute their psychological interests to religious preoccupations. Divided interests, vacillation have laid in some cases to the choice of psychology as a career. An apparently irrelevant event led Car to take up psychology as his major subject. Finding that he disliked at sight the instructor in his chosen subject of mathematics and realising further that the professor of psychology, whom he happened to meet, was genial and encouraging, 'he decided on the spot to turn psychologist,' although he practically knew nothing of the subject at the time.

Oldfield suggests that one means by which interest in psychology may be reached is 'through the existence and balance of two generalised tendencies, the one to treat material in an empiric, the other to treat material in a systematic way. In such a case there may occur a competition of

activities and a conflict of interests. The situation then becomes resolved through joint direction of both tendencies upon the material of psychology, which can offer scope for the two together."

S. C. MITRA

Experimental Demonstrations of the Psychopathology of Everyday Life—By MILTON H. ERICKSON. (*Psychoanalytic Quarterly*, VIII, No. 3, 1939, pp. 338-353.)

The author describes how he hypnotically induced in his subject conditions akin to morbid psychological ones, e.g., ambivalent feelings towards a person or a thing; lapsus linguae; conviction of absurdities with rationalization in support of the belief in them; automatic writing; 'crystal' gazing; implantation of a complex; assumption of another's identity and emotional attitudes. He does not dwell upon the therapeutic utility of the hypnotic method, but he expects that such a procedure may be used for the experimental investigation of many forms of personality.

A. DATTA

The Significance of Theatrical Performance—By RICHARD STERBA (*Psychoanalytic Quarterly*, VIII, No. 3, 1939).

Previous investigators concerned themselves more with the content of the play than with the acting itself. They found that the main topic of the play is the Oedipus Complex having its direct expression in tragedy, and in a reversed form in comedy. The author here points out that the unconscious factor in both stage play and children's play is the same, i.e., creation of the magic world. He says that "the pleasure of acting and of looking on at a theatrical performance is a very narcissistic one, through regression to early childhood stage of magic world creation".

A. DATTA

Development in the Psychoanalytic Conception and Treatment of the Neuroses—By SANDOR RADO. (*Psychoanalytic Quarterly*, Vol. VIII, No. 4, 1939.)

From his psychoanalytic studies Freud formulated his theory of neurosis, which is based on the hypothesis of instinctual drives. Although later on he modified his theory and recognised the dominant rôle of anxiety in the pathology of neurosis he did not draw any conclusion for the technique of treatment. Other authors especially Ferenczi and Wilhelm Reich attempted to do so but without conclusive results.

The author from his therapeutic works finds that the theory of instincts hinders rather than helps in understanding the etiology and treatment of neurosis. He therefore attempts to describe neurosis in terms of an *egology*.

According to the egological conception, "neuroses are disorders of the integrative ego-functioning."

The author says that anxiety, and its later development, fear, which were once serviceable devices of emergency control, become in course of time a constant source of trouble to the ego and under their pressure the ego takes unnecessary emergency measures and, in so doing loses not only self-control but brings down on itself self-injuries also. A better insight into the phenomena of self-injuries of the neurotics is "gained with the realisation that the emergency control is integrated on three hierarchical levels. On the highest, the intellectual level, its device is fear ; on the next, the subintellectual or affectomotor level, its device is anxiety ; and on the lowest subaffect level, its device is pain. These superimposed levels of integration possibly reflect the course of phylogenetic development." Fear and anxiety are the devices for controlling pain. Control of pain is, therefore, directed towards eliminating the source of suffering if necessary, even by the sacrifice of a part of one's body. The author says that the *riddance principle*—the principle of eliminating the source of suffering even at the sacrifice of a part of the body—is ingrained in the organisation of all animals including man. The ego's attitude towards mental pain or towards torment caused by the morbid fears and anxieties, is also determined by the same riddance principle. But the impulses of emergency control are sometimes repressed for the benefit of the ego. "A vicious circle is then established, the fears thus intensified reflexly turn back on and stimulate the deep-seated riddance impulses which in turn magnify the severity and painfulness of fears." In psychosis or under morbid excitement the patient loses his controlling insight and in a paroxysm of riddance, actually inflicts self-injuries on himself in order to put an end to the anticipated painful tension. In some cases, he comes to a situation where he is injured by others.

The author concludes by saying that "it is possible to restore to normality functions damaged by anxiety only by removing the obstacle of anxiety from their range."

A. DATTA

The Fundamental Conflicts with Psychoanalysis—By G. ZILBOORG.
(*The International Journal of Psychoanalysis*, Vol. XX, Parts 3 and 4.)

Every scientific system begins as a revolutionary idea and hence is apt to arouse opposition against itself. But the opposition that psychoanalysis has had to meet with so far has been more severe and persistent than has fallen to the lot of most of the other scientific ventures. The paper tries to

understand the chief instinctual sources of this special degree of opposition against psycho-analysis.

Theories of sex and unconscious are not, according to Zilboorg, really important sources of antagonism against psychoanalysis. The world had been, in a sense, prepared for them before Freud elaborated his views on these two subjects. For the really important reason for the opposition, one should turn to the phenomenon of dissensions and deflections within the psychoanalytic movement itself. These dissensions show an underlying uniformity of principle. These are inspired by the feeling that psychoanalysis, by its revelation of the psychic apparatus of the unconscious, has 'undermined the security of a free will and an immortal existence.' For emotional reasons, man has always felt the need for a dogmatic belief in a soul which is 'perfect and immortal', and which cannot have any real illness. The psychoanalyst's concept of psyche is based on scientific assessment of facts of human life and keeps clear of the powerful narcissistic motive that underlies the concept of the soul. "A confusion of the psyche as a scientific concept and the soul as a theological one mobilises in us a complex mass of narcissistic cathexes which constitutes the fundamental source of the well-nigh invincible opposition to psycho-analysis."

H. MAITI

The Ego and conception of reality—By RENE LAFORGUE. (*The International Journal of Psycho-analysis*, Vol. XX, Parts 3 and 4.)

It is well known how in some mental diseases the sense of reality is affected with the result that the patient's adjustment to the real conditions of his life seriously suffers. On the basis of this fact the author develops the view that Reality should be regarded not as a constant but as a variable. What sort of conception of reality one would be able to formulate will depend on the quantity and quality of the libido energy at the disposal of the ego for this purpose. Thus for example, "the conception of reality elaborated with a libido, where anal influences dominate, is noticeably different from the conception elaborated with a libido where genital influences dominate." The author suggests that it is necessary to make note of 'variations between individuals as regards their conceptions of reality and the limitations of those conceptions in the field of scientific discussions. Two types of conceptions are usually to be met with in this field. On the one hand, we have static conceptions which imply belief in absoluteness of logic, of reality, of science or of reason. On the other hand, we have dynamic conceptions which would regard time, space, logic and reality as relative and which would 'give first place to what is irrational and indeterminate.'

According to the author, it is not possible to arbitrate between the two conceptions by appeal to pure reason. We can only try to understand them by relating them to their deep-seated affective conditions.

H. MAITI

The problem of crime—By OWEN BERKELEY HILL. (*The Penal Reformer*, Vol. 11, No. 1.)

While believing that change in treatment of criminals will be brought about by the science of psychoanalysis, the writer deplores that the legal mind refuses at present to recognise the existence of the unconscious. 'The kind of psychology used by our systems of justice is not the psychology of the living being.....as to real human motives they have no knowledge.' Psychoanalysis can claim, according to the writer, that it alone can lead by its special methods to 'a complete understanding of the criminal and his acts.'

The paper proceeds by means of illustrations to suggest that psychoneuroses and criminality are closely related from the psychological point of view. What is expressed symbolically in one case forms the content of real actions in the other. Criminology has so far stressed the social factors in crimes, but these are only the aggravating circumstances, the fundamental cause lying in the emotional life of the individual. The paper quotes from Dr. Glover who believes that a large number of criminals are curable by psychological treatment and that the present method of punishment furthers criminality rather than stopping it.

There are different types of criminals and it is duty of the judge to discriminate between the 'healthy' and the pathological types. He cannot do it without attempting to understand the unconscious of the criminals, and hence, the writer concludes that knowledge of psychoanalysis is an important qualification for the judge.

H. MAITI

The factorial analysis of ability—By G. H. THOMSON, C. SPEARMAN, C. BURT and W. STEPHENSON. (*British Journal of Psychology*, Vol. XXN, Part II, Oct., 1939.)

The first five articles of the issue are the contributions to a symposium on 'The Factor Analysis of Ability' presented at the Extended General Meeting of the British Psychological Society held at Reading in April, 1939. The symposiasts were G. H. Thomson, C. Spearman, Cyril Burt and W. Stephenson. The results of the discussion have been summed up by Thomson in the last article, a summary of which is presented below.

Since the discovery and isolation of the 'g' factor by Spearman with the help of his elaborate mathematical technique, many eminent psychologists have turned their attention towards determining the nature of

factors and to the utility of assuming their existence in the field of psychology and education. Indeed these psychologists have found out and identified so many factors that the emergence in the near future of a new branch of psychology based on these alone is not altogether inconceivable. But just at the present time there are serious divergences of opinions even on the fundamental questions of factor analysis. The contending schools in this field are mainly—Thurstone's and Spearman's. Thurstone's trust in the coincidence of 'Simple Structure' in the matrices of different factor loadings without losing the psychological significance of the factors is not justifiable. Moreover, the conditions that he has laid down for his 'Simple Structure' do not rest on a sound basis, since they have been formulated merely to remove the uncomfortable number of degrees of freedom which allow the factor axis to be rotated in any direction so to say. Again the point where the factor axes are to be fixed is a hypothetical one. There is one more point against Thurstone's 'Factors,' namely, that he has tried to obtain better definition of the factors by forming augmented sub-batteries round tests chosen from his original list of tests. Spearman points out some defects in Thurstone's work, namely, insufficient time allowed for different tests, correlational technique as used by Thurstone, sampling and other sources of error, etc., but these objections can be overcome with a little effort. Thomson expresses himself more in favour of Spearman's 'g' and later group factors, since these factors seem to be more in accord with the fundamental ideas of his own 'Sampling Theory.'

As to the justifiability of negative loadings, the evidence is rather inconclusive. In the first place, it has not been fully appreciated that the objection to negative loading is not so much against one or two such loadings only, but against having almost exactly half the loadings negative in the factors following the first one; secondly, the objection is against the artificiality of explaining a matrix even of exclusively positive correlations by numerous negative loadings. Burt ably defends the case for negative loadings and bi-polar factors and perhaps he has to do so, because otherwise he cannot bring in his reciprocity principle. The writer, however, emphasises that the rigorous use of the reciprocity principle is advisable only for a very special sample of people who are all average in ability and in a very special sample of tests which are all of average difficulty.

In conclusion, Thomson shares in the hope expressed by Burt "that the 'tetrad difference' of the four symposiasts would be found to vanish" and he thinks we can all agree that some of the 'disturbers' of unanimity have proved not to be 'significant' and that those which remain, have been more clearly defined.

Book Reviews

SUGGESTIONS FOR THE USE OF NEW-TYPE TESTS IN INDIA.—Basil W. Menzel, B.D., M.A. Published by Oxford University Press (1939). Price Rs. 3.

There can be no doubt that the present examination system in India requires to be improved. The 'Suggestions' is written with the purpose of indicating how the New-type Tests can not only help us in bringing about this improvement but also provide us with a valuable method of measuring educational progress of the pupils. The author has had intimate experience of Indian school education in the Central Provinces, and is not only an enthusiast about the usefulness of the New-type Tests but has himself adapted many of these to Indian conditions. Though meant as a simple non-technical guide book for the average teacher, the volume under review makes out a very strong case for the use of the New-type Tests in our schools and training institutions. The language is clear and easy, the descriptive illustrations plentiful, and the directions are simple and fairly complete. The book is divided in two parts, the first dealing with the New-type Tests in different school subjects for class use, and the second with Intelligence and Aptitude Tests. Though the list of Tests already constructed given in the pages of the book is not complete, one may have from it a fairly good idea of the nature and extent of Testing work in India at present. There are four appendices, the last one giving a very useful bibliography on the subject of Testing. The value of the book has been increased to a great extent by an easily intelligible account of the statistical methods which usually constitute a bugbear to the average teacher in India. On the whole, the book will undoubtedly serve a useful purpose at the present stage of growth of Indian education by providing much necessary information and guidance to the average teacher on the subject of the New-type Tests.

H. MAITI

MENTAL HEALTH IN THEORY AND PRACTICE.—Bahadur Mal, M.A., pp. viii + 328. Published by E.M.A.I.R.I., Amritsar. Price Rs. 2-4 as., 1939.

The book contains 16 chapters and is divided into 2 parts: Theory and Practice. We congratulate the author for putting in popular language

a clear exposition of the subject of Mental Hygiene, mainly on Freudian lines. Really, the book "would be found helpful by such persons as are in search of practical guidance for the solution of personal difficulties in the mental spheres, as well as by those, who are desirous to make acquaintance with the doctrines and applications of this new science." The main doctrines of Psychoanalysis have been presented, the author claims, "with slight differences here and there in points of detail and appreciation." We fear that this slight difference has resulted in serious modification of the Freudian theory. The topics of instinct, emotion, unconscious, sex, sexual theory, repression and sublimation should be retouched and the topic of homosexuality discussed in a later edition. In the practical part there are many helpful suggestions which have enhanced the value of the book. The last chapter is worthy of special commendation. We can safely recommend the book to lay readers and beginners in Psychopathology as a good introduction to the subject.

M. N. BANERJI

Notes and News

Dr. N. N. Sengupta, formerly Head of the Department of Psychology, Calcutta University, and now Professor of Philosophy and Psychology, Lucknow University, is to preside over the Indian Philosophical Conference to be held in December next at Madras. Prof. M. Aslam of the Government College, Lahore, is to preside over the Psychology section of this Conference. We offer our hearty congratulations to Dr. Sengupta and Prof. Aslam.

Mr. G. Pal, Secretary sometime ago of the Indian Psychological Association, has been conferred the D.Sc. degree by the Calcutta University. Dr. Pal is the second person to have obtained this degree in Psychology from our University, Dr. Bose being the first, and we offer our heartiest congratulations to him. The thesis entitled, "Studies in the values and relations of D.L. for lifted weights under different attitudes when the weights are increased continuously" was examined by Prof. C. S. Myers, Prof. F. C. Bartlett and Prof. S. W. Fernberger, and we are very glad to hear that it has been highly appreciated by them.

Dr. D. R. Shendarkar, Professor of Educational Psychology at the Osmania Training College, Hyderabad, presided over the Psychology section of the 27th Indian Science Congress at Madras and the subject of his address was "Psychology and Educational Research." The problem of educational research in India formed the subject also of Mr. H. P. Maiti's Presidential address at the Teachers' Training, Educational Research and Experiments section of the All-India Education Conference held at Lucknow immediately before the Science Congress. Prof. Jamuna Prasad, formerly Professor and now Registrar of the Patna University, presided over the Psychology Section of the Indian Philosophical Congress held in December last at Hyderabad and his address was on "A Psychological study of class consciousness."

A series of popular lectures on "Psychology in the Home" was arranged during October and November last by the Psychology Department of Forman Christian College, Lahore. All the lectures were delivered by the staff of the college.

Dr. R. B. Cattell has received honorary degree of Doctor of Science from the London University for his valuable research work on temperamental qualities.

A quarterly review of philosophical books and periodicals has been started from October last under the name of *Philosophical Abstracts* from 884, Riverside Drive, New York City. The journal will help one to keep in touch with current philosophical thoughts and problems.

The *Journal of Criminal Psychology* has been started this year by the Woodbourne Institution for Defective Delinquents, New York, with Dr. V. C. Branham as the editor.

Obituary

M. P. WASHBURN

1871-1939

We are sorry to have to refer to the death of Dr. Margaret P. Washburn, Emeritus Professor of Psychology at Vassar, U. S. A., on 29th October last. Born in 1871, Dr. Washburn graduated from Vassar College in 1891 and was the recipient of the first doctorate at Cornell in 1894, *i.e.*, after Prof. Titchener had gone there from Leipzig in 1892. After lecturing at a few places, she joined her own college as Assistant Professor of Psychology in 1903. 1908 was an important year for Dr. Washburn, for she became the Professor at Vassar and brought out "The Animal Mind," a classic work in Animal Psychology, during this year. In this work the main problems of Animal Psychology received a very systematic and authoritative presentation, and as it brought together all the important studies on the subject, it has been a very significant step in the growth of this branch of our science.

Dr. Washburn is notable also for her 'motor theory of consciousness,' according to which the concept of motor response should be fundamental concept of Psychology. Images are due to blocking of the motor responses and ideas are tentative movements. Thought is also essentially a motor phenomenon. Consciousness itself is a matter of a 'certain ratio of excitation to inhibition in motor discharge.' A good presentation of Dr. Washburn's 'motor Psychology' which is completely different from Behaviorism, is given by herself in the *Psychologies* of 1930.

Dr. Washburn took leading part in the growth and advance of Psychology in America. She was actively connected with the editing boards of many journals and was herself a voluminous writer. She presided over the annual meeting of the American Psychological Association in 1921.

H. MAITI

Dynamic Structure of the Human Personality *

H. P. MATTI

It is not because of its popularity but because of its growing importance in recent years that I have chosen the problem of personality as the subject of my discourse here. Any student of the history of Psychology in the 20th century must have noticed how this problem has been steadily coming into the forefront of contemporary theory and research. We now feel an urgent need for understanding the individual as a whole both in his conscious and unconscious reactions. The need is not only a theoretical one but also a practical one of very great importance. Modern Psychology has had a definite call to help the individual and the society in the work of mutual adjustment and thereby to add to human happiness and efficiency. The problem of personality in its practical aspects meets us today wherever we have to deal with human nature in the concrete—in hospitals and clinics, in child guidance and vocational guidance centres, in factories and stores, in schools and colleges.

I. CRITICAL REVIEW

Beginning of Scientific Psychology and problem of Personality

There has always been a popular interest in the subject of personality. Until recent years, however, scientific Psychology did not attach much importance to it. From the very beginning it had a fear of the complex problem, and chose to work from elements up. This plan of work was adopted from Chemistry which was taken as a model for the new science of Psychology. The plan had, of course, its advantages and led us far on the path of scientific progress, but it soon appeared that in spite of its love for exactness, it held forth little prospect of helping us to understand the concrete individual in whom society must always be mostly interested. Demand for a changed outlook registered itself very soon in the form of new movements. In Functionalism the felt need for viewing

* Presidential Address, Section of Psychology, Indian Science Congress (Lahore), 1939.

the individual organism in its concrete biological setting and of describing its varied reactions to this setting had its direct expression, but beyond giving us a general biological orientation it could not achieve much by way of a real psychological explanation of the personality as a whole. Behaviourism which followed this movement laid sufficient stress on the 'organism at work,' and attempted an analysis of factors of personality. One has to deplore, however, the behaviourist's refusal to take into account the conscious aspect of the mind. Moreover, the general plan of personality structure is regarded by him as an additive one. He, at any rate, brought the problem of personality into prominence and took a leading part in initiating tests of personality traits.

While towards the close of the last century scientific Psychology of the laboratory was fighting shy of the complex problem of personality, it did not fail to engage the attention of a number of psychiatrists, notable among whom are Pierre Janet in France and Morton Prince in America. Working with the hypnotic method they familiarized us with the phenomena of dissociation of personality. Personality, as a wider term than mind, was meant to include much outside our consciousness. On the basis of a supposition of different levels of integration, which Janet described as 'psychic tension,' he distinguished two main types of personality structure, namely, psychasthenic and hysteric. Janet's work became very fruitful for psychiatric practice and theory, but from the systematic point of view we shall have to say, his real standpoint was more physiological than psychological. Ultimately speaking, the integration of personality is, according to him, a nervous matter. His conception of mind is a mechanistic one, and he was very much influenced by the associationistic psychology.

The investigations of psychiatrists on personality have been very valuable in introducing into general Psychology a concept which can take the place of the old metaphysical concept of self. It indicated also that the unity within our mind is not given from the very beginning, but has to be gradually built up in the process of development and maintained with difficulty through stress and strain of adaptation to varied circumstances of life. It revealed also that the unity within the human mind is seldom perfect. The psychiatric school, however, cannot be given the credit for having disclosed to us the mechanism of personality integration. It has not given us any insight into the way in which out of separate elements a unitary structure slowly emerges and also into the way in which that structure manages to preserve its integration throughout life in spite of onslaughts from changed circumstances.

Personality Tests

If scientific Psychology failed to appreciate the importance of the problem of personality in its earlier stages, it has made sufficient amends in recent years in the form of a vigorous movement of Personality testing. A huge amount of experimenting is going on at present on this subject, specially in America and Germany, and we are looking forward to developing tests by which it would be possible for us to determine the personality type of a man or to predict the general character development of a child in the same way as we have done to determine or predict the general intelligence of a man. It must be noted that the recent enthusiasm in Personality testing has been inspired by practical needs rather than by any systematic consideration within the science of Psychology. The technical help of psychologists is now being increasingly demanded to understand and advise upon psychological difficulties of a large number of individuals.

It has to be said that in the case of majority of tests now in use there has not been any systematic analysis of personality, either on an empirical level or on a conceptual one, previous to their formulation. It may be suggested that in following this procedure the makers of the tests have had the idea of the parallel instance of successful construction of Intelligence tests by Binet without a previous full theoretical analysis of the nature of intelligence itself. There is, however, an important difference between the nature of intelligence and that of personality. The former is a more definite and narrow concept than the latter. Further, it would be far from the truth to say that Binet had no theoretical idea of intelligence when he devised his tests. He had an idea, and on the right line. Within the last 30 years after his death, psychological theory has not found it necessary to revise his view that intelligence has the function of successful adaptation to environment and that it employs the different intellectual processes as the instruments of its action. It is doubtful whether our plan of Personality tests has yet been able to find for itself as secure a theoretical basis as the Binet Tests had as its inception.

Personality tests have been variously criticized. It has been pointed out that most of them are indefinite, arbitrary and superficial. While this criticism is largely true, it must be said that emotional and temperamental qualities constitute a more private, elusive and readily changeable aspect of human nature than intellectual ones. As an elucidation of this fact we can point to two outstanding peculiarities in Personality testing research ; one is the large variety of tests being used at present, and the other is the low correlation of reliability which these tests reveal. Defective choice of

traits may partly explain these facts, but I am disposed to think that the far more important explanation is to be sought for in the nature of the emotional side of man which we want to measure but which unfortunately does not yield readily to tests demanding verbalized responses.

Favourable mention must, however, be made of three current Personality tests. These are designed to measure clinical traits of considerable interests, *e.g.*, extraversion-intraversion, cyclo-thymic and schizothymic traits, and eidetic types. The tests appear to be relatively definite and of some diagnostic value. But as Pillsbury remarks, "the bases of classification used in the tests are relatively too narrow."¹

On the whole, one must say with Burt² that the personality tests are now 'too poor for practical work.' Burt advises teachers and research students to apply them carefully. It is difficult to pass an authoritative opinion on the personality characteristics of a man from the profile sheet in which the traits are recorded. He adopts, therefore, a standardised personal interview in order to supplement the application of these tests. Real defect seems to me to lie in the fact that Personality testing is at present very much influenced by a mechanistic conception of personality. Traits are regarded as separate blocks and, though personality may be defined as a total organization, it is actually indicated in summative terms. It is because we believe in this mechanical structure of personality that testers have deplored the inconsistency of a measured trait. A trait in a particular situation is really, however, the function of personality as a whole, and as such, it is apt to be variable if a change takes place within the complex structure of personality. It is a matter of common observation that a large number of persons are usually inconsistent in their behaviour. How shall we think of them? If we are to stick to the mechanical conception of personality we should regard them as unworthy of scientific interest. But science seeks the governing principle of whatever is given by nature, and the science of Psychology should not refuse to find out the principle even of inconsistent behaviour. Nothing but an insight into the dynamic structure of the personality can give us the governing principle of human behaviour.

Need for a dynamic concept of Personality

The need for a revised conception of personality is strongly suggested from perusal of recent text-books of Psychology. The authors feel bound to give a summary of the voluminous research work on the subject but do not hesitate to express their dissatisfaction with the value of the main concept itself. Thus one refers to it as 'not scientific' (Wheeler); another

as 'presumably popular' (Pillsbury); and a third as 'most difficult' (Murphy).

The view that personality is a complex organization with dynamic inter-relation of parts has been foreshadowed in the writings of some contemporary psychologists. While reviewing the work of Psychiatry in the field of character analysis, Roback³ seems to suggest that dynamic interpretation of character should 'take into consideration traits in operation, their origin and transformation.' He himself does not go, however, into detailed consideration of the origin and transformation of traits and gives us a theory not far different from the ordinary view, *i.e.* that personality consists in reflective control of instinctive impulses.

The need for a dynamic concept of personality has been emphasised by the Gestalt school of Psychology.⁴ It criticises the practice of describing personality from a list of traits. Personality is a functional whole with interacting parts some of which are dominant over others. No description can be adequate unless it shows the rôle of each part in the work of the whole. The Gestalt psychologists must be given the credit for having given us a dynamic theory of personality in its essential outline. The details of the outline have, however, to be supplied and the theory has to be given the solid support of facts gathered from the analytical study of concrete individuals. As Gestalt Psychology itself has not yet made any attempt on this line, we shall have to address ourselves to other quarters. But before we do that, it is necessary to refer in brief to the question of method.

A Question of Method

How are we to build a theory of the dynamic structure of the human personality? It can be assumed at once that such a theory must be based on empirical analysis of individuals in varying situations of life. It can also be assumed that the logical basis of inference should be what Gestalt psychologists describe as 'functional analysis.' When an organized whole with dynamically interacting parts has to be studied in its concrete entirety or in separate parts, this is the principal method to be used. Functional analysis is another name for correlated variation of functions in actual working. It corresponds to the well-known inductive method of Concomitant Variation without being fully identical with it. There seems to be at present considerable difficulty in the application of the method in the ordinary conditions of the psychological laboratory. We seldom get there the opportunity to observe all the aspects of the 'real' individual either in their isolation or mutual interaction. The method of functional analysis, on the other hand, has much scope of application in clinical

and psychoanalytical fields as well as in the field of genetic study of children. In the first we get variation of functions through pathological deviation, and in the second through normal changes in the process of development. A combined approach through the study of deviation and of genesis is likely to be very helpful. Conclusions based on this combined approach may finally be checked in the light of the phenomena of normal life.

Psychoanalytic Theory of Personality

I will introduce a personal note into the discussion at this point. It was during psychoanalytical experience and also during the clinical examination of Problem children that I came upon the idea of the dynamic structure of the personality, and realized the very great value of the recent revision of Freudian theory of neuroses for understanding this structure. The old theory explains neuroses as the result of a conflict between some part of the sexual instinct and the conscious mind or ego. The new theory goes into a deeper analysis of the latter factor and discovers a specially differentiated part within it, which, though very actively concerned in the conflict, is itself unconscious like the repressed sexual impulse. Freud has coined three special names for these three clinically distinguishable main functions of the mind, *e.g.*, Id., Ego, and Super-ego. The discovery of the Super ego and of its origin in the social influences of early period of life appears to me to have put a new complexion on Freud's theory as a whole. The theory has become more easily understandable and we have now a surprising unity of perspective over a much wider ground and also a larger variety of phenomena than before. What may be said to be more important to an academic psychologist is that the revision brings in a sense the Freudian theory closer to the general theory of mind by supplying an important link in the history of mental evolution from the sub-human level.

I would like to indicate this link in this paper, but, before I do that, I would make one particular observation on the triad of Id, Ego, and Super-ego. In a general sense, it corresponds to the other more popular triad of passion, reason and conscience which men take usually into account when judging of the character of other persons in society. One may guess from this correspondence that Freud's discovery after patient research receives considerable support from the natural intuition of the human mind. We should not, however, be blind to important differences between the two views. The meanings of the term of the Freudian triad are more inclusive, as these have both a conscious and an unconscious aspect. The new meanings are based on actual analysis of men and indicate a reason why popular estimation of character is not always correct, and why a correct estimation

has to be more or less a technical job. These also serve to explain why it is ordinarily difficult for a normal person to correct with his own efforts even minor defects of character. The second difference lies in the fact that, whereas the popular view would regard the three factors as distinctly separate entities, the Freudian conception recognizes their separate existence only for functional purposes but places them in a single evolutionary perspective. Genetically one is continuous with the other two. Id is undifferentiated instinct not yet organized under the unity of an Ego or self-feeling. Ego gradually develops, as the Id comes into contact with reality, and becomes in course of time invested with various mental powers to meet the needs of progressive adaptation. Super-ego grows out of the developing qualities of the Ego and represents a further differentiation of it. Its original function is to help the Ego in its hard task of keeping the Id in check.

The main purpose of this discourse is to emphasise that the three factors in their mutual interaction may be said to constitute the fundamental scheme of personality in an individual. If we can know the exact pattern of this interaction and its governing principle in a man, we have very little else to know from the psychological point of view so far as the dynamic core of personality is concerned. It is true that for clinical appraisalment it is indispensable to take into account physiological and biological factors, *e.g.*, anatomical and chemical peculiarities, organ inferiority, heredity, favourable and unfavourable environment, sudden and severe strain of circumstances. But, in my opinion, these are all accessory factors from the strictly psychological standpoint. We know that none of these fully explains why one should be as he is, nor also all of them taken together does it in all cases. Here we come to the question of the boundary between the science of Psychology and that of Biology. The former rises out of the latter and must have it as its base, but it is a superstructure with distinct principles of its own. In order to comprehend how the biological and physiological factors actually work we should reduce them to modes of psychological functioning.

Anyhow, I have seen in my experience that it is very much fruitful to keep the question of dynamic interaction of the three Freudian factors constantly before the mental eye and try to seek its pattern in any given individual, whenever we have to deal with him from the clinical point of view. This procedure, in my opinion, helps us in psychoanalytic practice not only with regard to giving the interpretation at the right moment but also in choosing the right type of interpretation to be given. It helps us in making a prognosis in the case of problem and even many mentally

deficient children.⁵ It makes it easy for us to understand better the differences not only between mental disease and normality, but also between the different types of mental diseases. It enables us to have an insight into different types of criminality as well as into the psychological factors of crime. It throws light on the psychological mechanism of social relations of man and thereby points the way to true mental hygiene. I think that the idea of dynamic interaction is also capable of making important contribution on the subject of genetic significance of mental functions.

While claiming so much for the value of the new theory, it would not be scientifically right to believe that it has given us complete knowledge about the dynamic factors of human personality. Much yet remains to be done to clarify our ideas on many points. The method of approach by which Freud came to the discovery of dynamic factors of personality may be described as one of regressional analysis of functions. For a general theory of mental development on the subject, we require to check and expand this analysis by results of genetic analysis of functions in the case of growing children of different types. Here is a vast field of work for Child Psychology, provided it gives up its present bias for the obsolete explanatory principle of association and begins to view genetic phenomena in an organismic perspective. A good beginning has already been made on this line by a number of workers both in Europe and America and we have had a very fair promise of fruitful and interesting results in the future.

II. DYNAMIC THEORY OF PERSONALITY IN A BIOLOGICAL PERSPECTIVE

Having pleaded for the application of the dynamic view of personality for the understanding of psychological problems, I will try to correlate this view with the theory of learning. I may justify my present effort by referring to the fact that in both the cases modification of instinct is the main subject of explanation. It is expected that such an effort may supply a general biological basis to the dynamic theory of personality.

Intelligence in Animal Life

We commonly use the concept of intelligence for explaining the modification of animal instincts. In a sense, intelligence is a part of instinct itself, a part that has been gradually differentiated out of it in course of evolution for the purpose of helping it in its successful adaptation to reality. We are concerned here to enquire how it discharges its adaptive function, and, I think, we can do that by entering into an analysis of the general functional principles of learning or modification of instincts.

I need not, however, go into a discussion about theories of learning. The differences between the trial and error theory and the insight theory are unimportant for my purpose. We may suppose that intelligence which is responsible for adaptive behaviour works in two different ways ; a more slow and overt way of trial and error and a more quick, economical, and implicit way of insight. We may further suppose that as we go up the scale of evolution, the trial and error way is gradually replaced by the insight way. I will present here a few basic principles of adaptive behaviour in the animal world which I think both the theories may accept. Of the three principles enumerated below, the first one is usually emphasised in the text-books as the all-sufficient law of learning. But I consider that no account of the function of intelligence as the instrument of biological adaptation can be complete without the other two principles.

(1) The fundamental principle of intelligence underlying learning processes is integration. When an instinct starts activity in an organism, some of the organic reactions taking place in a particular order serve to remove the instinctual need. Learning consists in integration of these satisfying reactions into an organised unit. Integration involves two processes, inhibition and facilitation. In the completed stage of learning the processes are indistinguishable but in the initial stages inhibition usually precedes and prepares the way for facilitation. We may think of pain as the psychological correlate of the former and pleasure as that of the latter. Quoting a word from Freud, one may say, that pain is the 'path-finder' of pleasure. Though inhibition is usually helpful, it is likely to be otherwise if it exceeds a certain limit. Animals in the experimental cage sometimes sit idle and worried from inhibitory effect of many fruitless efforts. Pavlov's dog is said to give up learning and even to fall asleep in advanced stages of inhibition. We know also that the inhibited child is very much averse to learning.

From the question of inhibition we may digress for a moment to the allied subject of emotion. Inhibitory effect of emotion is very well known. We do not know what is the exact physiological correlate of it, but one may guess that emotion develops at a point of sudden blockage in the path of instinctual tension discharge, ensuing in sudden increase of potential of energy in the discharge process. In support of this hypothesis one may refer to the (i) close connection of emotion with instinct, (ii) massive release of energy in emotion, (iii) the obviously reinforcing effect of many of the visceral changes of emotion. It will also explain (iv) the obvious affective character of emotions, for the qualities of pleasantness and unpleasantness may be said to vary according as the phase of facilitation or inhibition pre-

dominates in the reaction to the blockage. Our hypothesis will do justice also to the (v) markedly conative trend in emotional experience and would be in consonance with the (vi) thalamic 'double route' theory. (vii) The emotional significance of human conflict as revealed by psychoanalytical researches will also have a definite meaning in terms of this hypothesis.

(2) The second principle of adaptive behaviour may be described as a dynamic inter-relation between instinct and environment. It is necessary to recognise this principle in addition to that of integration. The direction of integration is determined by the given fact of this dynamic inter-relation. The importance of it is also obvious from the fact that the actual use of a completed integration on a particular occasion depends upon it. Past learning is helpful as long as the dynamic relation between the instinct and the environment is not disturbed. Kurt Lewin⁵ has referred to the importance of recognising this dynamic relationship between instinct and environment for the explanation of behaviour. It seems to me that the obviousness of this relationship must make us concede a perceptual sense of reality to the animal mind. It implies also that the primary consciousness on the plane of instinctual excitation is projective.

(3) Capacity for sustained tension is the third principle of adaptive behaviour. In a broad sense, the activity of an instinct consists in a process of tension discharge which continues in the form of a series of organic movements till a sensory contact with a particular object helps in removing the tension altogether. If the discharge takes place at a high potential or becomes excessive, either by the very nature of the instinct, or for reasons of blockage, as in the case of emotions, the function of intelligence in leading the instinct to its goal becomes very much affected. From biological point of view a necessity, therefore, arises for keeping the tension under check. To what extent this is actually done depends perhaps partly upon the inherited strength of the instinct and partly from its acquired strength from past use; but there is no doubt that if intelligence is to act as an efficient principle of regulation, it should gradually take upon itself some responsibility for keeping the tension under control during the process of learning.

The effect of the capacity for sustained tension is very important for further mental development. As it initiates control over the motor end of reaction, it may be said to be the fundamental initial condition for appearance of higher forms of intellectual activity above the level of perception, by making available for them energy that would have otherwise gone into the motor system. As one goes up from grade to grade in the animal world, one can mark that the adaptive behaviour gets more and more

complex, and along with it the capacity of control over the motility increases. It is difficult to say very definitely whether mental powers on the intellectual side also increase at the same rate as these do, but from the increasing facility of learning there seems to be no doubt that abilities of sense discrimination and of organic memory systematically improve with rise of grade. When we come to the insight stage, control must be said to have been very marked. For, it indicates substitution of direct motor impulsion by sensory or imaginal activity.

We may summarise our discussion of this part in one sentence. For the sake of successful adaptation to increasingly complex environment, instinct differentiates out of itself what is known as intelligence which helps it with its three fundamental characteristics or principles : Integration, Effecting of dynamic relation of instinct with environment, and Capacity for sustained instinctual tension.

Development of Human Personality

Having given an account of the principles governing modification of animal instincts, I will now enquire into those of modification of instincts at the human level and try to see how these enter into the making of the human personality. For our knowledge on this important subject we are indebted to psychoanalysts. There is good reason for believing that the basic structure of personality is laid within the first five years. But about the exact steps and principles our knowledge is still very much hypothetical. As Anna Freud says, ' the chronology of the psychic processes (leading to the growth of the personality structure) is still one of the most obscure fields of analytic theory.' ⁷ I will confine myself in the summary presented here to broad points which many psychoanalysts may be disposed to accept. It is needless to say that the account would not be free from interpretations based on personal observations and reflection.

We may present the account of early personality development in three broad stages, each having a special characteristic of its own.

1. Inadequacy of organic intelligence and compensation by the social environment

Intelligence has to mediate between instinct and environment. Both these factors are so complex and varied in the case of the human baby, that his intelligence would have certainly failed to cope with them, if there were no supplementary principle of adaptation provided by the society. This adaptation given through the loving care of the mother or nurse not only allows his immature intelligence to develop without undue strain, but also

actively and systematically assists it in its work of acquisition of skill and knowledge, and also in its wider work of social adaptation.

It is important to consider the psychological rôle of the mother. Regarded perhaps as any other external object in the beginning, she soon acquires special significance as a source of fresh stimuli, as an object of reactions, and also as a parallel mind with same feelings and attitudes as those of the baby himself. In psychoanalytic terms, she draws considerable amount of libido cathexes upon herself. As Vernon Jones puts it, 'the mother forms a part of the child.' Perhaps it would be more apt to say that between them the mother and the child form a sort of 'compound mind' across space, one half of it lying in the ill-defined body of the child and the other half projected out into the mother.

There is no doubt that an emotional rapport is soon established between the two, and, on the basis of this relation, there takes place much mutual direct understanding. It gives the helpless child a much needed feeling of security and helps him, in addition, to acquire attitudes and ideas about many things in life. In this sense, it is a great socialising process. Majority of psychoanalysts give it the name of primary identification. It seems that we have not yet grasped the psychological nature of this process very clearly. Some take it as identical with introjection. I am inclined to think that identification is the primary form from which introjection and projection have been differentiated as two separate phases. These latter processes are to be found only when a distinct Ego sense has already developed. In support of my view I may point to the fact that in extreme instances of schizophrenic regression to the earliest level the distinction between the self and the reality vanishes, and both behaviour and gestures indicate re-enacting of primary identifications. In hypnotism, also, the sense of distinct self is gradually abolished through progressive rapport, and when a state of extreme suggestibility is produced, it is this process of identification that seems to be operative in my opinion.

Anyhow, there is no doubt that identification forms a very important mode of quick learning as well as of basic character education, specially in the earliest stage. It is not confined to the child's relation with the mother but extends to his relation with other persons and even non-personal objects, provided he can have an emotional point of contact with them. The various identifications seldom make a harmonious system but often contradict each other. Contradictory identifications sometimes appear as split apart in the verbiage of little children in play and in that of schizophrenic patients. Early identifications may be not only inconsistent in themselves but also with later experiences. All these contradictions put a heavy strain on

the synthetic function of intelligence, and as a consequence, our life often grows up with many inconsistent beliefs and attitudes. Many of us have met with brilliant students of science who would not allow their scientific curiosity to touch their fondly cherished superstitious beliefs. We know that these beliefs have been fed upon emotional identifications of early childhood and are, therefore, so invulnerable.

Let us digress here for a moment on the educational function of the family. That a family with healthy outlook is a great educative force is borne out not only by psychoanalytic experience, but also by statistical research. Speech defect in feeble-minded children of approximately same I. Q. has been found by me to be greater in the case of 'poor' homes than in the case of moderately good homes. Gindl and Hetzer report an interesting study which shows that institutional children are about one-half retarded in general development, and about two-third retarded in language, as compared even with foster children⁸. If the influence of the family on early intellectual growth is so great, its influence on emotional and moral growth is far greater. I have seen in connection with examination of Children's Court and Reformatory boys, as also during visits to juvenile prisoners in jail, that most of juvenile criminals have had bad homes.

2. *Clash with social environment*

As the child grows up, his demands and pleasure cravings increase, and he usually begins to play a little tyrant. It often becomes necessary then, not only to disappoint him, but also to check him in the interest of his education and future relation to society. The same mother, who has indulged, has often to refuse and to scold. If she is too soft to do this, she gets someone else, usually father, to do it for her. The child begins to feel that a wrong is being done against him. He reacts to the disappointing mother by aggression. But, as she loves him and still continues to give him pleasure in so many other ways, he has love for her, too. A state of ambivalency of love and hate arises with respect to the mother, and later on father also, and may come out for a time in open expression in the behaviour of the child.

Partly for internal and partly for external causes, the first acute period of aggression and obstinacy is from the end of the second year to the end of the third. He seems to resent for being thrown out of that emotional closeness which we have described as a sort of 'compound mind' between him and the mother, and his increased aggression may be interpreted as a natural expression of this resentment. One may think that with the growth of intelligence and of the unifying sense of self and with a fair amount

counterpart of the Id. I think we should use the word 'Ego' only when the Super-ego appears on the scene and there arises a keen sense of 'self' in distinction from others. Anyhow, we may briefly describe the new structure of the personality by imagining that while the Ego has its face normally turned to the perceptual world, the Super-ego has its eyes on the Id, which, of course, wants to look with its face averted from either. But if any of the latter two parts has to act, it must do so through the bodily or the mental processes of the Ego.

Place of Intelligence in Human Personality

Let us look at the total effect of the new structural change for a moment. Reality, acting mainly through the mother, draws love of the young child upon itself and uses this love as an important condition for educating and socialising him. With love comes out very soon his aggression as well. The socialising process is placed on a firm footing, only when, as a result of conflict between him and the world, he internalises a considerable part of his aggression and also some part of the energy of his sexual impulses. He introjects the outer principles of control for this purpose, but he cannot make them work, unless he turns the energy of the aggression upon himself in the form of self-criticism and, also in the more severe form of self-punishment in case of autoplasmic release of repressed Id impulses. In normal persons the self-punishment is minimal, in psychoneurotics it is greater and more severe, in psychotics attempt is made to throw it out, with less success in paranoia, but more in dementia præcox. Anyhow, one may say that, in withdrawing his aggression from the world upon himself so as to spare it to the latter, man has been acting Jesus-like ever since the rise of civilisation, and that the life of Jesus holds forth before our eyes a true symbol of the fundamental moral problem of man.

In making this review we are particularly concerned to know how is the position of intelligence in the total scheme of life affected by the change. Is it still continuing as the main regulating principle of life? In one sense, it is not; in another sense it is. In a narrow sense it is now relegated to a subordinate rôle of helping only the intellectual side of the Ego in its relation with the external reality. In a wider sense, its activity may be regarded to be co-extensive with the whole field of Ego activity. We may follow this latter suggestion better if we enquire how the essential principles of the biological function of intelligence have reappeared on the human plane. (a) The first principle of integration is to be found not only in the restricted application of it in the form of conscious learning and reasoning, but also over the activity of the Ego as a whole in its constant

attempts to harmonise forces of love and aggression as well as to bring together self and the world into a synthetic unity of sublimation. The same harmonising tendency is illustrated in pathological cases from the Ego's efforts at balancing, either in the form of a symptom or of a compensation, of the opposed forces of Id and Super-ego. Repression may be regarded as a special and complex form of biological inhibition, both serving the integrative function of the mind in the same general way. Moreover, there is endeavour on the part of the Ego to bring up into the light of conscious intelligence the disharmonious tendencies of the mind in the form of philosophy as well as in the form of rationalisation. (b) The second principle of dynamic relation of instinct with reality is represented in the chief direct function of the Ego, *e.g.*, perception of reality. Even in cases of psychoses, where the Ego appears to be a closed system cut off from reality, the influence of perceived reality is not absent altogether, but manifests itself in an introjected or subjective form. (c) The third principle, *e.g.*, capacity for sustained tension, which we have suggested as an essential biological condition for the development of intellectual powers, underlies the conscious will of the mature Ego acting with the help of such powers. The Super-ego which is described as a growth out of the Ego may be regarded as a special factor in this process of control. In a word, though the Super-ego plays the most important part in the change, and is also more directly active in neuroses, the principal hero of the drama of the mental life is still undoubtedly the Ego with intelligence as its greatest ally.

To indulge in a little further speculation, we may say that the same intelligence that has successfully helped our animal ancestors in their work of adaptation is still trying to help us. It has, however, to serve a more complex need of adaptation in our case, *e.g.*, adaptation of instinct to physical reality as well as to civilised society. We must say that it is groping for way and has not yet been able to develop a fully adequate technique of adaptation. Psychoanalytic research may be expected to help this process of further evolution of intelligence by giving us knowledge about the subtle ways in which its purpose is being baffled at present. We may hope that it will prepare the way for a new education by which our intelligence will acquire new powers and become thereby a more efficient and balanced principle of regulation of life. The aim of education and that of mental hygiene are the same in the long run.

III. PATTERNS OF DYNAMIC STRUCTURE OF PERSONALITY

The three structures of Id, Ego and Super-ego form a continuously active system, one part of which is in dynamic interaction with the other

two. A change at one end leads to correlated changes at the other ends. Except in advanced types of psychoses there is outflow of energy from the three structures of the personality into external reality, so that functional connection between the latter and the self remains intact. Ego has of course direct dealings with reality, but the contents of Id and Super-ego cannot go out to it except by special mechanisms of Projection and Introjection. By Projection, external objects, persons, and social institutions become invested with unconscious tendencies of the Id or Super-ego. Normal life has been possible because of this projection ; for, it provides a safety valve for what the Ego would not directly allow to be expressed. A considerable amount of projection underlies our normal interests as also the creative activity of Arts. It becomes pathological, as in psychotic delusions, because of the special nature and direction of the contents projected. These delusions are usually of two types, grandiose and persecutory, and embody expressions of projected Id and Super-ego impulses turned to self as their object. Opposed to projection is introjection by which qualities and tendencies of external objects are believed to be one's own and which forms a second mechanism of connection of the unconscious parts of the personality with reality.

Once the pattern of personality structure is set up in childhood, it constitutes a sort of Herbart's 'apperception mass,' assimilating fresh experiences and trying to maintain its general outline. Changes take place sometimes under the influence of important (from the individual's own point of view) environmental forces, specially of the social type, or on account of sudden change of instinctual energy as in puberty or climacteric. Appearance of mental disease in advanced life is an obvious instance of change of the dynamic pattern for the worse. Relatively speaking, the Ego is normally capable of more adaptive change than the Id and the Super-ego. From the theoretical point of view we may define the healthy mind to be one in which all the three structures harmonise and retain their plasticity of adaptation to reality till late in life. In the neurotically minded, on the other hand, plasticity is considerably affected by the fixation of the Id and the Super-ego at an earlier stage.

Attempts have been made by some psychoanalysts in recent years to define patterns in different mental diseases. Notable among them are Alexander¹³ and Schilder.¹⁴ The former has dealt mainly with psychoneurotic patterns and the latter with psychotic ones. I will briefly try to illustrate in a general way the specific type of dynamic interaction in two common neuroses.

In conversion hysteria the Ego develops pain at the same somatic point as is used for excitation by the repressed sexual impulse. The pain is the

punishment that the Super-ego inflicts on it for allowing itself even a disguised Id gratification. We may say that in the hysteric symptom all the three factors meet in a sort of dynamic unity at a single point. One of my patients had extreme neurotic smarting of the eyes whenever he used them for voyeurish purpose.

In obsession neuroses the mechanism by which Id and Super-ego interact is different. They apply themselves on the Ego through separate processes. Three alternative mechanisms are indicated here. (1) The really reprehensible element may appear as a meaningless thought, whereas the Super-ego punishment takes the form of a painful compulsive act; (2) Or both Id and Super-ego may appear as isolated mental processes, one expressing displaced Id and the other some anxiety-provoking haunting sense of humiliation or of sin; (3) Sometimes the punishment of the Super-ego is dynamically enacted through some accident or 'camouflaged' provocation of a superior authority before the repressed impulse is gratified. Many obsessive symptoms are really expiatory 'bribes' to the Super-ego, so that after a technical punishment the objectionable impulses may be permitted. A young man could not visit the girl he fondly loved without making some sort of unconscious sacrifice or loss. Even when he found himself alone in her company, he would forget what he had thought of saying and would instead go through some silly act in a cursory manner.

In many apparently normal characters also, the mechanism of 'neurotic' interaction of Id and Super-ego is very marked. I know a brilliant young man who would interview many office-masters and produce a very good impression, but, just on the point of final success for which he had worked up so patiently, he would usually let something out of him that would suddenly change the mind of his well-meaning would-be patron. I know of another who has often spoiled his chance of success in life by delay and postponement at the right moment on very petty excuses.

With the help of the theory of dynamic structure of personality it becomes easy for us to understand the various types of criminals. In the first place, there is the Psychotic type in whom Id and Ego seem to make alliance together to overthrow the Super-ego and carry out their attack against its originator, the society. In the second place, there are criminals who commit crime out of a sense of guilt, and seem positively to 'seek' punishment, and who may be said to form Obsessive type of criminals. In the third place, we have another type of criminals in whom the Super-ego development is comparatively weak, either on account of poor early social influence, or arrest of intellectual powers, or both. They form the Deficiency type. If the description given here is correct, then the proper way to deal

with the first type of criminals is some suitable form of sublimation of their abundant aggressive energy, and failing that, isolation from society. What is really needed for the second type is psychological treatment. The third type requires re-education according to natural capacity, and in extreme cases, protection and care. Many of the last type are apt to fall easy victims to intelligent criminals of the first type.

We have no time to attempt a logical classification of possible patterns of personality on the basis of our analysis, but there is no doubt that such a classification would be interesting not only from the clinical point of view but also from that of vocational psychology. In choosing a man with a particular interest and aptitude for a vocation it is very important to know if these enjoy the stability of a sublimation or suffer from unbalanced character of Id cathexis, or has the inhibited character of a severe Super-ego influence.

IV. PERSONALITY STRUCTURE AND SOCIETY

We are prone to emphasise heredity as the more important factor in the determination of human behaviour, and specially of individual personality. In the light of recent researches about the principles of personality development one cannot, of course, deny the influence of heredity, but must feel disposed to call in question the usual amount of emphasis given to it. It appears to me that the old belief in Fate very often masquerades as the principle of heredity. Our discussion has at least brought out the great importance of the social factor for the shaping of a healthy pattern of personality in the individual. We may go further and say that the social factor plays an important part not only in the formation of a personality but also in helping it to keep within healthy lines of development throughout life. It is true to say that individual mental health and progressive outlook of society go hand in hand. I may quote here a case for illustration of my point. I had to deal some time ago with a problem child of 11 years. On his transfer to a poor type of mufasil school he became quarrelsome and sulky, but, on the whole, more nervous than before. In his former school he had been very good both in behaviour and studies, though not without some sign of general nervous tension now and then. It became evident that the real reason for the problem behaviour was the withdrawal of the opportunity of competition with other bright boys on his transfer to a school where he had no equal in intelligence. The competition had given him sublimation of his aggression the interference with which led by regression to a pathological form of alternation between open aggression and fear. On my advice

the boy was sent to another school to 'fight out' his aggression, and he very soon made rapid improvement before much havoc could be done through social repercussions of his bad behaviour. The example indicates how society is responsible not only for the formation of a healthy pattern of personality structure but also for helping it on ever afterwards.

By way of conclusion, I may refer to the question of social morality and hint at its bearing on the dynamics of personality. The social attitude to morality supplies the unconscious basis of the individual's Super-ego which plays a fundamental part in the drama of his personality. Psychology has been charged with undermining our morality and thereby leading to social chaos. We may reply to this charge by saying that as a science of human nature it only finds what is there in it already. No scientific analysis can make human nature more moral or immoral than it is in itself. Is our science to be blamed for laying the finger at the real point of weakness in our out-of-date morality? If it has done that, it is not for removing morality from life, for no human life is possible without it, but in the interest of morality itself. Like the morality of the neurotic personality, our traditional morality is fixated to a primitive form, and, being a static institution of control, knows only to prohibit, to warn and to punish. As a result of this fixation, our erotic and social life cannot go out into fresh paths of adaptive achievements and we find in the world to-day a huge mass of human energy turned mad and destructive. A demon of aggression is stalking over the world and we have wars, death-dealing inventions of science, communal fights and jealousies of all descriptions. Modern Psychology points to a way out of the emotional tangle of man's love and aggressive impulses. Sublimation!

Shall we be able to bind our hate and aggression by outwardly directed love?

It is for future humanity to answer that question, but we can say that it is not man's instincts that are alone to blame but also his blind morality and narrow education which would not recognize needs of progressive adaptation and which would not allow his instincts to grow along fresh paths of sublimation.

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CALCUTTA.

The Utility of Psycho-analysis in Social Anthropology

PRINCE PETER OF GREECE

Since 1895 when Psycho-analysis came into being as a scientific method of psycho-pathological clinical investigation, it has, both by the discoveries which are due to it and as a process of psychological observation, proved to be of great value for the progress not only of such sciences as Psychology and Psychiatry, but also of Pedagogy and Biology.

It appears to me that there is yet another science which would derive unquestionable benefit from this modern psychology. As the science of man and of his activities throughout the world, anthropology cannot fail to take an interest in psycho-analysis. It is especially in that section which deals with the relations of man to man, social anthropology, that Freud's discoveries can, it seems to me, be of the greatest utility.

I. *Defects of Social Anthropology*

1. Anthropology as a whole is so vast a science endeavouring to cover so great a field that naturally it is still far from having reached its full development. In fact, it is still a budding science. Consequently, though many of its present affirmations are undoubtedly of great scientific value there are still a number of customs which remain unexplained because of their embarrassing and perplexing nature. Of this type are the *Couvade*, head-hunting, Totemism, various initiation rites such as subincision, unilateral-castration, excision, infibulation, taboos of different kinds, etc.

In days gone by, these customs were amusingly, and I suppose fittingly enough for that time, described as "ye strange devices of ye beastly heathen". To this day, a more suitable definition of them is still to be found.

No thorough-going investigation of these practices has ever really been attempted. Ethnography has only reported them because they made good stories for home consumption. Classical ethnology in its efforts to explain cultural differences has been definitely unsuccessful in its attempts to deal with these strange institutions.

Neither evolutionism nor diffusionism has so far succeeded in giving a convincing explanation to account for the existence of them. Functional

ethnology has not fared better. In its attempt to establish a constant cultural scheme based on the primal biological functions of institutions, it has so far only assigned social and economical functions to the aforementioned customs. To my mind, this is most unsatisfactory.

What conclusion should be drawn from this state of things? To a student of psycho-analysis there can only be one reason responsible for it; *Too little is known of the emotional life of man.* It is this handicap which has so far hampered social anthropology's progress.

Until the discovery of psycho-analysis, it seemed quite impossible to acquire the necessary knowledge. But, there now exists a scientific method by which former difficulties can be overcome.

2. *Psycho-analysis*

It is extremely difficult to make a summary of psycho-analysis. As a method it can be considered as an experimental observation through speech of the deeper motives of human behaviour. Many important principles have been in this way brought to light. I shall simply limit myself to a rapid summing up of those points which are of special importance to anthropological research work.

1. The structure of the mind can roughly be considered to consist of an unconscious part (the Id) and a conscious one (the Ego). A third division, our moral conscious (the Super-ego), can be distinguished for the sake of clarity though its component parts are both conscious and unconscious.

The Id comprises: instincts, of which the sexual and aggressive ones have shown themselves to be of greater importance than hitherto suspected; philogenic urges and the individual infantile past.

2. The necessities of civilisation, i.e., social life, compel individuals to sacrifice some of their sexual and aggressive gratification in the interest of more urgent needs such as food, material comfort and security. The object of education is precisely to form the individual in this way so that he may become a good citizen. Educators and external conditions of upbringing act no doubt consciously upon the growing child, but Freud's great discovery has been to show the important rôle which philogenic urges unconsciously play in forming the adult mind.

These are partly biological, such as the oral and anal stages show, and partly due to the static force of social conditions as the Oedipus and castration complexes show.

3. *Psycho-analytical contribution to Social Anthropology*

Deep-going as the psycho-analytical method has proved itself to be and because of its discoveries which have linked up individual psychology with

social phenomena, it is eminently suited, I think, to collaborate with social anthropology in dealing with the problem of wierd customs of undoubtedly emotional character.

It will enable ethnography to undertake a thorough and searching psychological investigation never attempted before and of great value for comparison with our western discoveries.

It will also, most probably, be of great assistance to both classical and functional ethnography in their efforts to discover the laws of function and difference which apply to these baffling customs.

One important point should however be kept in mind : *The relativity in space of psycho-analytical data is not yet established.* Up to now, the facts which we are in possession of have been established exclusively on the basis of western clinical experience. They may not, for all we know, be true of mankind in general, of individuals living in different social organisations.

It is therefore extremely important when following up anthropological problems with the aid of psycho-analysis, to avoid all kind of interpretation by deductive application of Freudian theories. Such a method can, I admit, lead to the establishment of perhaps useful hypothesis, but never of facts.

In order to obtain these strict observation of reality, as it objectively is, by way of the method of psychological analysis, is of great scientific value.

I know that in saying this I am implicating many difficulties which will be placed in the path of the research worker ; for instance, learning a foreign language, establishing intimate contact with people of different customs and ways, living in a certain amount of isolation and discomfort, being absent from home for long periods at a time, etc. But there appears to me no other way by which indisputable facts can be laid down, facts from which it will be possible afterwards to induct, with a minimum risk of error, the ethnological laws of function and difference such as they really are.

Conclusion

The difficulties which I have just outlined call for personal sacrifices, but sacrifices well worth the results they would be compensated by. Such enterprise needs men. A few isolated and no doubt valiant research-workers can make but slow progress in the field of psycho-analytical and anthropological collaboration. And since I believe the work well worth undertaking I appeal to all those who feel the inclination, understanding and patience, to take it up and join me in carrying this excellent task rapidly forward.

LAHORE.

Studies on the Visual Perception of Geometrical Figure—Indirect Vision *

M. GANGULI

A paper relating to visual perception of figures in direct vision was reported at the Science Congress in the year 1928. The setting of the present experiment has been kept similar to the one in the previous experiment so far as was practicable but the visual field has been changed from *direct* to *indirect* one. The preliminary portion of the paper and a general report of the limiting threshold-values in degrees was submitted to the Science Congress in January, 1933.

During the last few years comparatively large number of data has been collected with a view to investigate certain specific aspects of the problem. The general instruction to the subject was as before to attend to the task rather than the sensory-motor adjustment. The stimuli used were circles of two sizes with graded gaps in the circumference interpolated with other simple geometrical figures where necessary and as before the Gradation and the Constant methods were used for threshold determination. The gaps in the circumference were placed at four different positions, namely, A, B, C and D. The portable "Whipple Model" camera-tachistoscope with an exposure-time of about 3'50 which is approximately equal to the exposure-time selected in the case of *direct*-vision experiment reported before, was selected for the presentation of the stimulus.

During the preliminary stage of experimentation *four* subjects took part one of whom however had to leave work for some unavoidable reason and hence only *three* subjects with experience of laboratory conditions and introspection were available at the time. *Two* of the subjects worked in the previous direct-vision experiment and *one* was a new recruit for this investigation.

The comparison between the nature of the *direct* and *indirect* vision is based on a study of 1105 readings collected from a single subject by application of the principle involved in the Constant method and 338 readings from the Gradation method. The practice-records were not counted in any case.

The following figure (Fig. 1) shows the geometrical setting of the apparatus, the fixation point, the position of the eye of subject and the distances of the fixation point from the eye and the middle point of the tachistoscope. This setting gives a fairly good idea about the nature of the stimulus.

* Read before the Section of Psychology, Indian Science Congress, 1939

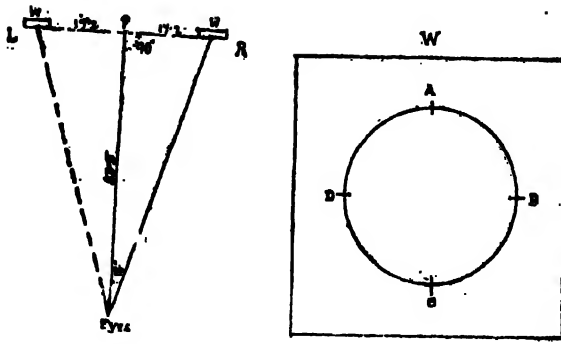


FIGURE I

If the tachistoscope is taken further away from the fixation point the visual threshold seems to become very low and hence it is puzzling for the subject to work with the stimulus-cards which are constant for both the direct and indirect-vision experiments. Figure, II shows the different position of the gaps in the stimulus (cards) graded in terms of 5 degrees, from 5 to 45 degrees.

All the threshold-values except one were found out from the mathematical treatment of the data given in the table in the case of the Constant method with inverted tachistoscope (position II). In the exceptional case (with inverted tachistoscope) the interpolated values from the graphic records were tabulated. Some stress was laid on the Constant method, one of the reasons being that a large number of data must needs be collected and statistically treated in that method before anything definite can be said (Ref.—*Jnd. Jour. Psychol.*, Vol. III No. 3, July, 1928, p. 144.)

There are 32 types of cases for separate experimentation and all of these were investigated but the details (of the number of readings taken under each type) are not mentioned here. The following figures may be helpful in forming an idea about the typical cases for experimentation :

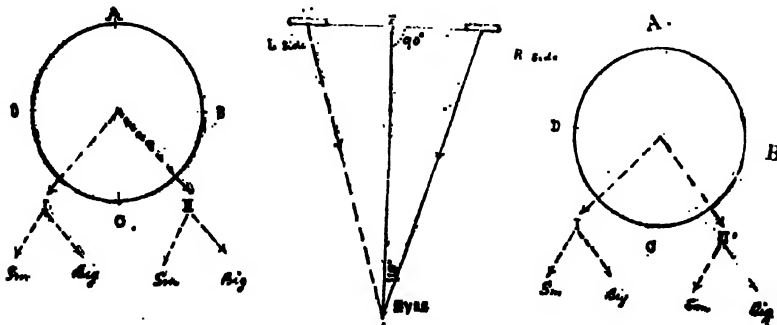


FIGURE II.

The camera-tachistoscope can be placed in a normal (I) or in an inverted (II) position so that the movement in the sliding tape with exposure openings is opposite under the two different conditions.

By this means we can try to evaluate, if possible, the effect of the direction of movement on the threshold-values.

In the case of *indirect* visual perception the chief feature seems to be a distortion of the stimulus, i.e., either flattening or elongation of the figure as a whole. In order to investigate these changes a complete circle drawn on a white card (Card No. 56—Appendix II, No. 2) was moved along the perimetric arc with the binocular line of vision at the fixation-point of the perimeter.

The following figure with the references indicated in Appendix I, Introspection B and C, will be found helpful in forming an idea of the changes in the subjective aspect of the figure (Ref.—Sanford, *Exp. Psy.*, p. 192 : *Ind. Jour. Psychol.*, Vol. II, No. 1, Jan., 1927 ; *Indirect Perception of Forms*, by S. C. Mitra.)

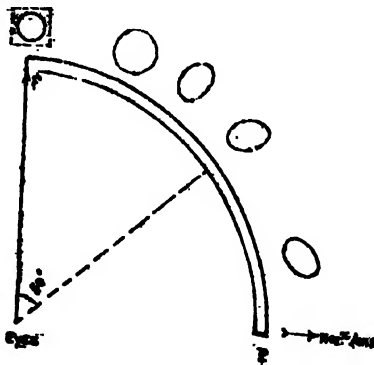


FIGURE III

Results :

The essential features of this paper can be found out from the graphs, the table of data and the Appendices I and II showing introspection and phenomenal character.

(1) It appears that the threshold-value in the case of *direct* vision varies from 5 to 25 and that the perception is not influenced by the size of the stimulus within a certain limit provided the nature of the figure remains the same. In the case of *indirect* vision the range of variation of the threshold-values seems to be about 20° , the lowest value being 20° and the highest 40° , and this range has not been exceeded under the two conditions of visual perception. The difference is that in the case of the *direct* vision the threshold-value falls very low whereas in the case of the *indirect* vision

all the values are pretty high and this brings out the fact that one class of perception is more sensitive than the other.

It may be noted by referring to the graphs that the two curves under the normal position of the tachistoscope (I) closely follow each other specially on the right visual field (R-side) but in the case of the inverted position of tachistoscope (II) this does not hold good with such an amount of precision. This indicates the presence of complex condition which is difficult to control and the nature of the influence of this condition is as yet uncertain.

This brings in the question whether the size of the figure influences the threshold value measured in degrees in the case of *indirect* vision and the study of the curves indicates the possibility of the absence of at least any great influence specially in the case of the normal position (I) of tachistoscope.

It may be noted that when the tachistoscope is placed in an inverted (II) position producing thereby an opposite motion of the exposure-reel of the apparatus, the "A" and "C" positions of the gap seem to be interchanged by the opposite exposure-movement. The nature of the curves obtained under this condition was similar to the curves under the normal tachistoscope-position only when the threshold-value of the gap in the C-position was replaced by the value obtained in the A-position and *vice-versa*. It seems therefore that the nature of the exposure influences the threshold-values of the gaps in the different positions of the stimulus.

(2) The threshold-value changes in this experiment with the position of the gap on the circumference. In the case of the normal position (I) of tachistoscope this value is least at "A" and highest at "C," i.e., downward position or near about it. But when the tachistoscope is inverted (II) thereby causing an opposite movement in the exposure-reel the threshold-value at A-position or near about it becomes highest so that C-position is identified with the A-position.

(3) The perception of the stimulus shows certain features. The size of the stimulus, which is a circle, becomes larger and then distortion follows beginning from a slightly flattened circle with the longer axis very nearly vertical and ending with an almost elliptical shape which has the longer axis almost horizontal. This happens when the stimulus is drawn from the fixation point of the line of vision towards the indirect visual field. (Ref.—Appendix I). Towards the extreme position away from the fixation point the sharp black contour of the stimulus becomes broader and hazy.*

* Errors in refraction was corrected by suitable glasses.

(4) All the three subjects in this experiment were unanimous in reporting that there was a bluish tinge in the field of vision. The figures seemed to them to be illuminated by a different sort of light than that we are in the habit of experiencing ordinarily in our daily life. This blue tinge might be interpreted as less yellow. The perception of a different quality of illumination in the visual field during indirect vision places the whole aspect of perception of the figure on a different footing from the standard. The appearance of the blue tinge might be due to the greater absorption of the yellow component of the daylight by a definite locality of the retina which is not the yellow-spot (Ref.—Parsons, *Colour Vision*, p.42). We are also in the habit of ignoring the yellow component of the illumination during the day owing to adaptation but in this investigation there seems to be an oscillation of attention from the white component of the illumination to the colour component thereby creating a disturbance which is not generally present in the case of direct vision.

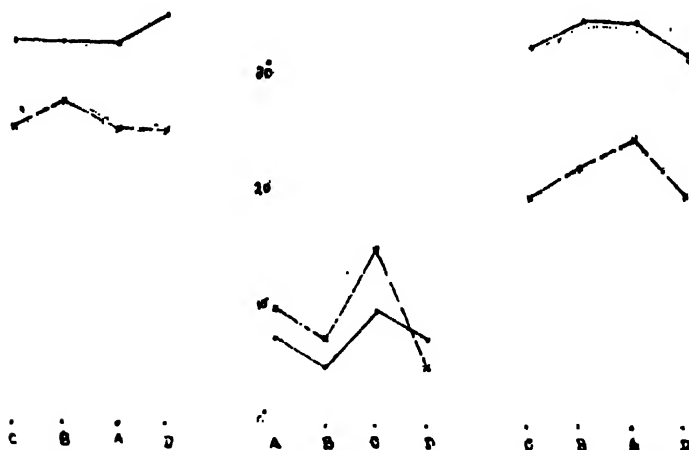


FIGURE IV

I must express my thanks to Mr. S. K. Bose and Mr. S. Jalota and I am conscious of my debt which I owe them for helping me to continue my work.

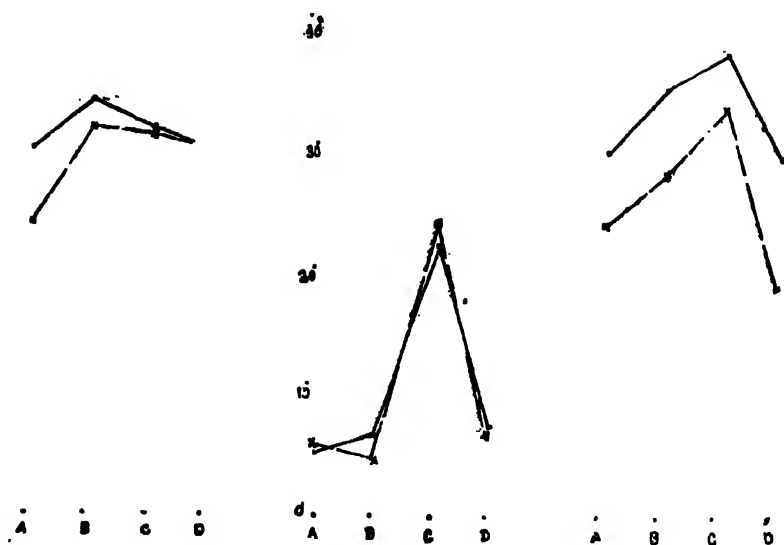


FIGURE V

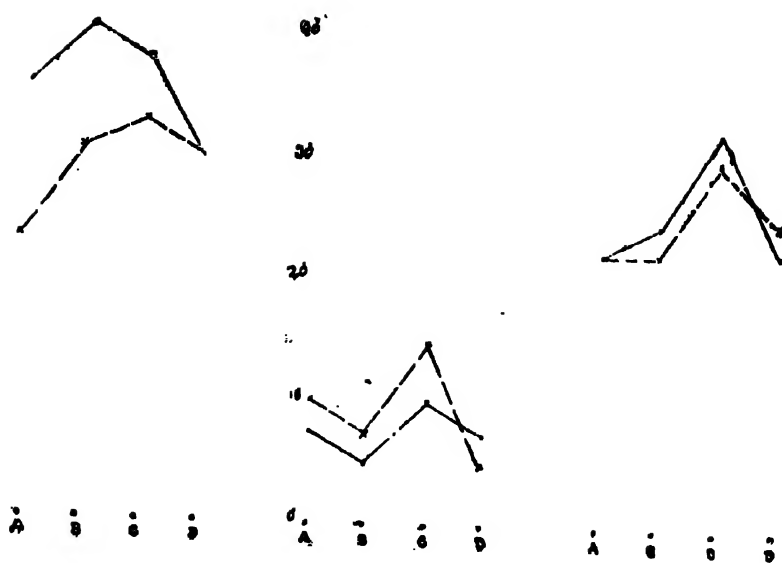


FIGURE VI

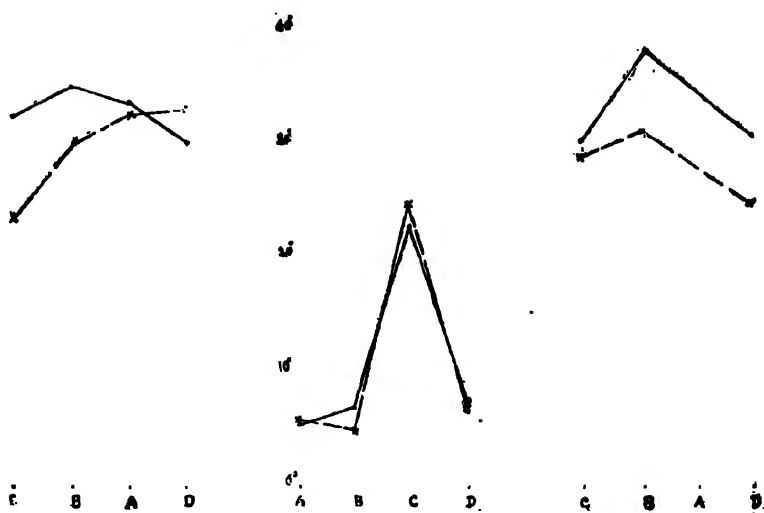


FIGURE VII

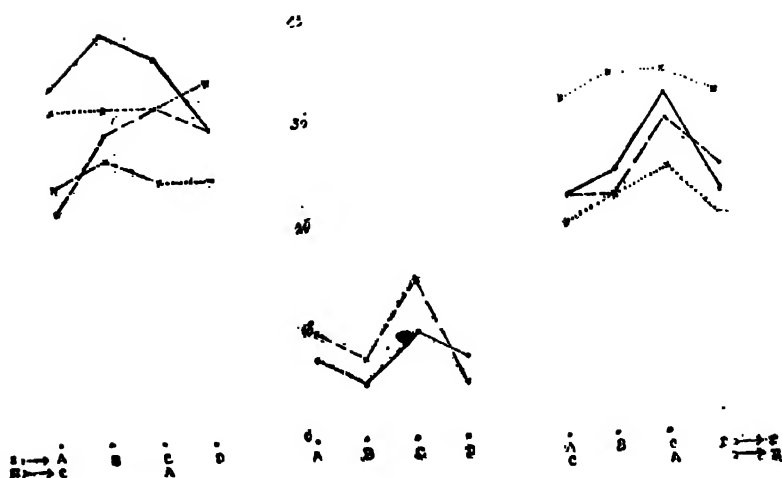


FIGURE VIII

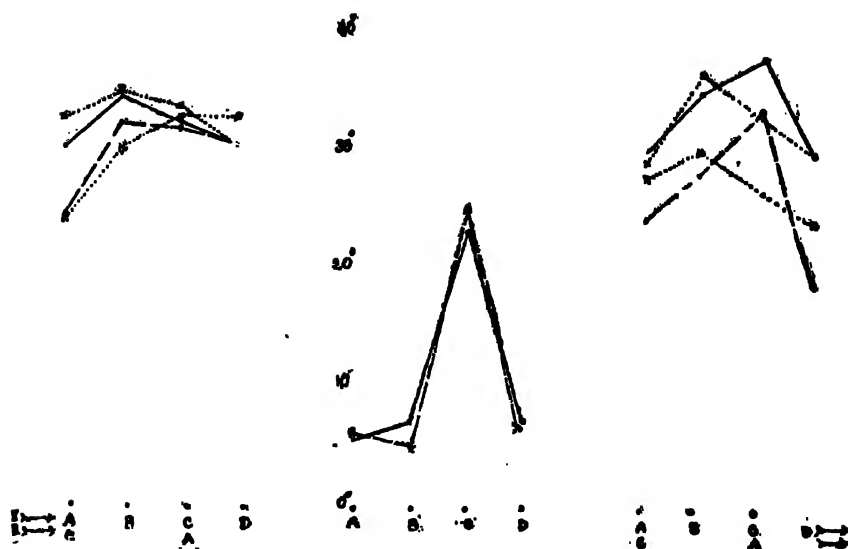


FIGURE IX

TABLE OF DATA (A)

Gradation Method—Threshold in degree

R-Side

	Small Circle			Big Circle		
Position	I	Tachis	II	I	Tachis	II
A	22'5		35'0	22'5		25'0
B	25'0		35'0	22'5		22'5
C	32'5		32'5	30'0		20'0
D	22'5		32'5	25'0		20'0

L-Side

A	35'0		32'5	22'5		25'0
B	40'0		32'5	30'0		27'5
C	37'5		32'5	32'5		25'0
D	30'0		35'0	30'0		25'0

TABLE OF DATA (B)

Constant Method—Threshold in degree

Position	<i>R-Side</i>					
	Small Circle			Big Circle		
	I	Tachis	II	I	Tachis	II
A	31°0		*(34°5)	25°0		*(28°0)
B	36°5		38°0	29°0		31°0
C	39°5		30°0	35°0		28°5
D	31°0		31°0	20°0		25°0
	<i>L-Side</i>					
	A	30°0		33°5	24°0	32°5
	B	34°5		35°0	32°0	30°0
	C	32°0		32°5	31°5	23°5
	D	30°0		30°0	30°0	33°0

* Numerical digits within brackets are interpolated values from the graphic records.

APPENDIX I

Introspection (A)

Stimulus Card Number	Phenomenal Character
6	Right side of figure slightly flattened
8	Vertical elongation of figure
9	" " " "
23	" " " "
25	" " " " (slight)
26	Sidewise elongation
9	Elongation of the lower portion of figure

Introspection (B)

Perimetric Posn. of St.
card No. 56 in degree—
R & L side

Characteristic distortion

10	Bigger than the original stimulus
15	" " " " "
20	Vertical elongation (approx.) and distortion of stimulus
25	Biggest size of stimulus with distortion
30	Bigger size of stimulus but not confident
35	Decrease in the size of the stimulus
40	Distortion of stimulus. Double contour occasionally.
45	Distortion with hazy contour. Size probably smaller.
50	Distortion (elongation) with hazy contour
55	Hazy contour

Notc.—The shape and size are indicated in the serial order beginning from the furthest point in the perimetric circle as shown below :—

1. Hazy stimulus.
2. Flattened stimulus.
3. Bigger circle with broad blackish contour. Bluish tinge in the field of vision.
4. Smaller circle with thin black contour.

Introspection (C)

The stimulus grows bigger in size as it is drawn from approximately 40 degrees peripheral position towards the fixation point. Rate of increase in size is greater at first, although not uniform as there are jumping steps. From about 20 degrees to 10 degrees the stimulus becomes smaller in size until it takes the size of the original stimulus when very near the fixation point.

CALCUTTA.

Towards a Dynamic Theory of Space-Perception

N. N. SENGUPTA

The problem of space-perception in Psychology, resolves itself into the subsidiary problems of the perception of shape, size, distance or depth, direction and location. These bring in their wake the further problems of optical illusion, of the perception of movement. A general psychological theory of space-perception presupposes the solution and a certain congruence in the conclusions that make such solution possible. The question is again placed on a much wider basis when account is taken of the studies in animal behaviour.

This line of study brings into relief the fact that orientation to objects in space takes place through the practical necessity of adaptation to the environment. The adaptive responses of the organism are determined by the organic needs, hunger, sex and avoidance of pain. The sensory experiences that arise serve as cues for releasing reactions that meet these needs. Thus, the sense-perceptions, and the awareness of organic wants, affective experiences and reactions tend to form a unitary pattern. And the organism may be said to be well-adapted to the extent that the pattern is unitary.

A change in any one of the constituents would necessarily alter the pattern as a whole. The process of evolution of the sense-organs brings in its wake a profound modification in the series of sensory experiences. The sense-perceptions, now variegated in quality, serve to lend variety to the space-experiences. The nuances of feelings and impulses varying with the changing pattern of sense-qualities, build up several configurations.

The different orders of animals live in this way in different types of space-configurations. The large size of the olfactory region in the sub-human types of life suggests that the space configuration is dominated by smell-sensations. The animal thus lives in a space largely of directions determined by each whiff of odour—a space indefinite in contour and ever hinting at movement. A more stable scheme develops when sound and smell join together in defining the pattern of experiences. Distances, directions and locations gradually emerge. there is greater *structuration* in the space-experience.

A new pattern gradually grows in human life, dominated by the visual sensations. The large variety of movements again contributes to the greater precision in orientation to things. Possibilities of quicker reaction render simultaneous the experiences that are successive in the slow-moving living beings. Hence man develops a new space-configuration in addition to the ones that he shares with lower orders of life and to which he regresses when visual guidance fails.

Theoretical considerations

The interplay and integration of such a variety of operations in the development of space-experience implies that cortical factors play a significant rôle. They serve not only as the necessary links between the peripheral factors but also as agencies determining the character and the quality of space-experience. The *nativistic* theories seem to rely wholly on the peripheral factors as supplying the basic data of space-consciousness. The *empirical* and the *fusion* theories, too, make the nervous centre the *Dieu ex machina* for somehow educing space out of the materials supplied by the general course of experience (Empiricism) and by the special senses along with kinaesthesia (Fusion theories). The course of experience sketched above, however, indicates that we may think of space consciousness as very largely determined by the central factors. This view is supported by three commonplace but striking experiences. (i) The first of these is the phenomenon of eidetic imagery which possesses the same space character as perceptual experiences. These images may appear long after the peripheral stimulation and must be attributed to central factors. The space-character of these images, too, then, must be centrally determined. (ii) We must in the second place refer to dream experience which, too, possesses a space character analogous to that of sense-perception. Since dreams are almost wholly conditioned by the central factors, the space factor too must then be central in its origin. (iii) A third set of facts relevant to this issue is that of comprising the effects of certain drugs. It is well known that there is a curious disturbance of the whole sensory system, of the ego-feeling, and of the experiences of space and time, under the influence of hashish. Things may increase in their space magnitude, in length, breadth and height. They may also contract into a microscopic point. The effect of hashish, however, is mainly upon the central nervous system. Thus the space distortions must be attributed to the central factors. As a matter of fact, Head and Riddoch classifies the general function of the cortex as an organ of sensory discrimination into a series of special functions. The analysis of cerebral

lesions shows that cortical disturbance (i) interferes with the perception of amplitude and direction of passive movements ; (ii) there is a deterioration of the aesthesiometric sensitivity ; (iii) there is also an interference in the localisation of tactual impressions. All these orders of space-experience, perception of direction, of distance and of locality then depend upon the cortex. Head and Riddoch also hold that the functions of recognition of similarity and difference between shape and size of things, and of specification of perception of shape and size, must also be attributed to the cortex.

Suggestions for a ' Dynamic ' theory

We have referred above to the difference between the ' spaces ' perceived by each of the senses. It is to be assumed then, that the sensory centres play an important rôle in this context. Again, the fact, that the visual space experience easily superimposes itself upon a tactual space experience, as for instance in the tactual perception of shape, implies that the two areas, visual and tactual, constitute one field of stimulation and that one of these, the visual, dominates over the other, the tactual. Thus we have to conceive of a process of irradiation of the *nervous impulse over the whole of the sensory area*, as constituting the basis of the space-experience that is implicated in our common adjustments to the external environment.

The process of irradiation, however, is *dynamic* in character. But our daily life, yields experience of a *static* space. Wertheimer suggests a certain correlation between the physiological and the psychological *Gestalten*. How far is the view presented above able to meet this point?

(i) In the first place there are certain categories of space-perception which are dynamic in their significance. The perception of direction in terms of smell or sound possesses a suggestion of dynamism which is reflected even in the language. We speak, for instance, of a smell coming from a particular direction. In a like manner, in experiments on auditory localisation, the introspection presents the sound as travelling or growing faint. The static field marked by a line does not reflect the phenomenal character of the sound experience which is dynamic.

It may be said that all sensory fields in which the spatial contour is ill-defined tends to assume a perpetually changing and therefore dynamic character.

(ii) The visuo-spatial experience too tends to assume under certain conditions a dynamic character. Kenkel presented the Müller-Lyre

figures in the Schumann taschistoscope and distinguished three types of movements that could be observed. (1) *Alpha movement* in which the central figure seems to grow larger or smaller in movement. (2) *Beta movement* in which the first figure seems to grow into the second. (3) *Gamma movement* is the movement within a single figure as it expands or contracts when the figure is exposed and as it fades away from the view.

The size of figures then can become a dynamic experience-process.

(iii) Hashish to which reference has already been made, also gives rise to space experience of a dynamic nature. A man grows into a giant or shrinks into a Lilliputian figure. A statue lengthens out its hands to touch a person : person's nose grows yards long before the observer's eyes.

There is, thus, no dearth of materials to support the dynamic view in the psycho-physiology of space experience. We can conceive of the physiological basis of space-experience comprising the perception of space, space-dreams, space in eidetic imagery and space perception under the influence of hashish, in the following manner.

The Initial Space-datum

When a sensory centre is brought into a condition of activity, the stimulation spreads into other sensory centres along the channels prepared by past experiences and heredity. In this way, there is a total field of stimulation in which one of the sensory areas preponderates over others. Thus arise special modalities of space-experience characterised by the terms 'visual,' 'auditory,' etc. It is understood, however, that as soon as the dominant sensory constituent is somehow inhibited, the other space-patterns which have remained unnoticed make themselves observed. This is what happens when we try to play the 'blind man's buff' or to orient ourselves under the conditions of darkness. A particular modality of space-experience then subsumes and holds in fusion with it a number of other space-modalities. Our space-experience, be it perceptual or of any other variety, at any particular moment is then a resultant of the amalgamation of a number of specific space-experiences. Thus the view presented here is in keeping both with the empirical and with the fusion theory.

In most of these instances space appears as a dynamic experience with uncertain boundaries reflecting the character of the spread of the neural impulses in moments of ebb and flow as it were.

In the case of visual space, however, another factor comes into operation. We are familiar with the concept of the simultaneous stage in Wertheimer's experiments which can be described in the following way: When the two lines, one vertical and the other horizontal, are presented in Schumann's Taschistoscope at an interval of 30 signals both appear together and at rest: The visual centres for man, being in greater use, naturally possess a low threshold value. Hence these centres can be more quickly brought into a condition of adequate stimulation than centres of other sense-departments. The quick succession of visual impressions are observed as in the simultaneous stage. For, the spread of the stimulation is quick. Hence, the visual space appears as the static space. Since it is for man the most important agency of directing motor responses, the visual space predominates over the other sensory spaces. This induces the idea that space for man is a static object.

The Space-Indicator

The foregoing analysis suggests a phycho-psysiological basis for the primitive space-datum. Psychologists have had to assume such a datum in many different forms such as extension, voluminousness or the length, breadth and depth of the nativist. In the present case, too, if the preceding analysis be correct, there is undoubtedly a residual space datum which is more primitive than voluminousness, or extension. Let us call this the *space-indicator*. We have seen that it arises along with the sense experiences and is inseparable from them.

Its Biological rôle

It has been suggested above that the space-indicator is correlated with the spreading of the impulse from one to the other sensory centres. But the sensory stimulation ultimately leads, sooner or later, to the setting up of an efferent impulse. When, however, two sensory centres form a united field of stimulation the efferent impulse set up is common to both. Hence the space-indicator makes for the building up of a common pattern of responses. There is thus an economy of effort, a conservation of bodily energy through elimination of motor rivalry. We can agree in this sense with Bergson in his view that space is a schema of motor responses.

The development of the Space-Categories

The *space-indicator* leads to particular types of response. There may be responses that survey the contour of things, in terms of the muscles of the eye, in terms of hands and other limbs. There are others that

measure the interval between the body and the object; still others after the perspective of the body in relation to the object. In this way there arise the different types of space-categories which represent the diverse adjustments of the body of the organism. In this way it is possible to speak of a shape response or of a location response just as much as it is possible to speak of perception of shape, size, etc.

It will readily be seen that this view is in keeping with James' theory that strikes a middle course between nativism and empiricism. It is also in keeping with the fusion theory of Wundt that stresses the kinaesthetic factors in space perception. Above all it gives due recognition to the dynamic factor in space-perception pointed out in the experiments of the Gestalt School.

LUCKNOW

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“ Reliability of Repeated Grading of English Essays”

HEMCHANDRA BANERJEE

Introduction

Wide variability is shown in the marking of the same essay by different examiners or by the same examiner at different times. Even the most qualified and experienced examiner cannot mark a given essay with a feeling of certainty that any other equally competent examiner would give the same mark or that he himself would give the same mark if he had it again after a long period of time when he had completely forgotten his previous marking. This variability in marking is principally due to the personal equation or idiosyncrasies of the examiners and the differences of their perception of excellence. This personal equation may be due to the differences in the relative values or penalties assigned by different examiners upon various elements in a paper, the difference in the standard of severity and leniency of the different examiners and also to the differences in the taste of the examiners in the answers being put in a particular form. “ Each examiner consciously or unconsciously makes his own analysis, measures each element by his own rod, weighs each factor in accordance with his own scale of values and finally arrives at a verdict which sums up a number of hazy personal opinions.”

Experiment

An experiment was carried on at Dacca with a view to determining the reliability of and the wide variability in regarding the same English essay on a familiar subject after an interval of six months by ten different experienced teachers and head masters of High English Schools, who had abundant practice in the marking of essays, and comparing the results of marking when these essays were marked on impression only with the results obtained when marked in accordance with a detailed marking scheme.

Thirty-one boys of Class IX of a High English School at Dacca were asked to write an essay in English according to the instruction given in Appendix I. The subject was “ A short description of my Home ” and the time allowed for the work was 40 minutes. These essays were given

first to ten experienced examiners in March, 1938, and again in September, 1938, when I was certain that they would not be influenced by any memory of the grades given six months earlier. But a different procedure was followed on the second occasion. In March they were asked to mark the essays by impression only and in September they were asked to mark the essays according to the following marking scheme as suggested by Sir Philip Hartog and E. C. Rhodes in "An Examination of Examinations" (see Appendix II) :—

The maximum mark is 100

1. Quantity, quality and control of ideas	...	...	50%
2. Vocabulary	...	...	15%
3. Grammar and Punctuation	...	...	15%
4. Structure of Sentences	...	...	10%
5. Spelling	...	...	5%
6. Handwriting	...	...	5%

Results of the experiment

(1) There is a lack of agreement in the judgment of the same material by the same teachers at different times. Only 2 out of 10 teachers gave the same grading to the best paper the second time that they assigned the first time.

(2) One of the good papers was marked by 60% of the teachers above average of the group, but below average the second time.

(3) Their marks differed greatly from those which they allotted on the first occasion and in one case the examiner's mark differed by not less than 19 from his previous marking. This showed a deviation of nearly 41% in one individual estimate of a particular paper when he examined the paper on two occasions.

(4) Out of 31 papers sent up for marking one examiner failed 25, passed 6 and gave credits to none, while another examiner failed only 4, passed 21, gave 3 credits and 3 special credits, when these essays were marked by general impression. Again one candidate was failed by 5 examiners, passed by 2, and awarded a pass with credit by 3.

In 1931 an experiment was carried out at Durham in which all the English answer-books from one school were marked independently by seven experienced examiners and the results showed "an astonishing lack of agreement both as to the class of candidates and to the relative order of

the individual performances. One candidate, for example, was failed by three examiners, passed by one and awarded a pass with credit by three."

(5) *Average marks awarded in the first and second grading of the same material by the same examiners.*

	EXAMINERS									
	A	B	C	D	E	F	G	H	I	J
Impression Marking	35'5	40'2	25'6	32'6	35'6	40'5	37'3	30'8	37'6	37'6
Detailed Marking	39'6	35'2	21'5	29	34'2	40'4	35'7	32'5	36'1	36'7
Difference	4'1	5	4'1	3'6	1'4	1'1	1'6	1'7	1'5	1'9

From the study of the marks awarded by different examiners it is seen that except in two cases, the average mark awarded to the essays marked by impression was greater than the average mark awarded to them when marked by a detailed scheme of marking, but the difference in most cases is very small and with five examiners the difference is between 1 and 1'6. A comparison of the average marks given by different examiners is no criterion of their reliability and variability of marking with regard to individual candidates. Here the averages in the case of five examiners are almost the same, but the distribution of marks between the different candidates shows the variability in their judgment of particular papers. Of course the detailed scheme of marking partially obviates the difficulty. But these cannot entirely eliminate the individual judgment of the examiner with regard to certain factors, specially style and literary merit of the paper.

The average standard deviation of the marks by impression was found to be 9'2 and that of the marks by details was 8'7. But with two examiners the differences are marked : 10'4 and 11'2 when marked by impression ; and 8'8 and 9'2 respectively when marked by the detailed scheme of marking. Moreover, the average range of marks was 44 for the marking by impression and 37 for the marking by the detailed scheme. That means that there has been more than normal crowding of marks about the mean, i.e., each candidate has been put a bit nearer to the mean than he would otherwise have been.

(6) There are wide variations in marking by impression by different examiners. The greatest difference was shown in the marks of a boy who received the following marks: 25, 35, 45, 50, 55, 60, 65, 70, showing a range of 45. The lowest range was 20. Whereas in the marking by details the range of the marks obtained by the same boy was 28, and the lowest range was 14.

(7) The wide ranges when marked by impression are due to greater differences in the standards of marking adopted by the different examiners, but the use of a detailed marking scheme ensures a closer approximation of the standards of examiners, reducing, to a very slight degree, the element of random marking for reasons stated above.

(8) To determine the unreliability of marking even by the same examiner fifteen typed copies were made of the best essay and were given to fifteen experienced teachers. They were asked to mark the essay first by impression and then by the detailed scheme on the same day. It was found that the assessment of the value of the paper varied not only when it was marked by impression, but also when marked by the detailed scheme. Their marks by impression varied from 45 to 65, as shown below :

Number of examiners awarding the mark.	Marked by Impression.	Marked by a Detailed Scheme.
1	45	46
1	48	52
3	50	50, 52, 52½
3	55	47½, 50½, 56½
1	58	58½
2	60	58, 60½
4	65	60, 62, 62½, 65

(9) The average marks awarded by the examiners for the different elements are shown below :

	Ideas	Vocabulary	Grammar	Structure	Spelling	Handwriting
Maximum	50	15	15	10	5	5
Average	13.7	5.6	4.4	3.7	2.3	2.2
In Percentages	27	37	29	37	45	44

These average marks show that the papers were poor in quality, specially with regard to quantity, quality and control of ideas and grammar. Here the tendency of the examiners was to favour the scripts that were much below average or just on the border line and to undermark the scripts that were average or just above the average. This was noticed more in the marking by impression. An examiner can recognise a certain paper as a pass or failure when it is well above or below the average, but he is incapable of recognising the paper that is a bare pass. This is one of the reasons why the marking by detailed scheme did not produce higher marks on the average than the marking by impression, though we got this result by a similar experiment carried out in March, 1937.

(10) Almost all the examiners agreed on the following points :

(i) Quality and quantity of ideas should be shown and marked separately. Control of ideas and vocabulary should come under quality of ideas, because without a good stock of vocabulary ideas cannot be successfully controlled.

(ii) Grammar, including punctuation and structure of sentences, may be combined, because the latter falls under the former

(iii) Five marks for spelling are inadequate.

So the revised scheme is :

1. Quality and control of ideas including vocabulary	...	40%
2. Quantity of ideas	... ..	20%
3. Grammar including punctuation and Structure of sentences		25%
4. Spelling	... ..	10%
5. Handwriting	... ..	5%

The examiners are of opinion that there would have been a difference at least of five marks in the total almost in all cases, if this revised detailed scheme were followed in marking.

CONCLUSION

The results of this investigation show that there is a great degree of unreliability in the marking, and that the fate of the candidate in examinations may differ with the different examiners, and the candidates are on the whole exposed to the unfairness of chance, whatever may be the examining technique followed to ensure accuracy. I agree with Kandel

when he says, "No amount of care in the marking of paper of the essay-type, discussion of standards before the marking is undertaken, the reading of papers by two or more examiners, the distribution of students on a normal curve—can successfully eliminate the fallibility of subjective judgments."

APPENDIX I

INSTRUCTION TO THE CLASS

1. Do not write your name or class on the paper, but write your Roll number only.
2. You are required to write an English Composition on the subject below.
3. You have 40 minutes in which to write it. You may have more time if you wish.

SUBJECT

'A Short Description of my Home.'

Your brother has been absent from home for several years. He has never seen the home where you are now living. In his last letter he writes, "Tell me all about home so that I may feel as if I had seen it." Write a short description such as he requires.

APPENDIX II

INSTRUCTION TO MARKERS

'A Short Description of my Home'

- (1) Kindly mark the enclosed composition, and enter each mark against the corresponding Roll number on the enclosed mark-sheet.
- (2) The maximum mark should be 20.
- (3) Marks are to be awarded on general impression only.
- (4) Please do not make any mark of any kind on the boys' papers. The papers should be handed back in exactly the same condition as they were received.
- (5) Please do not consult any one in regard to your marks, nor show your marks to anyone.
- (6) Do not keep any copy of your marks.

SECOND MARKING

Please consider these papers again and allot, in accordance with the following scheme, fresh marks, without reference to and without attempting to remember the marks awarded on the last occasion :

1.	Quantity, Quality and control of ideas	...	...	50%
2.	Vocabulary	...	...	15%
3.	Grammar and Punctuation	...	...	15%
4.	Structure of sentences	...	...	10%
5.	Spelling	...	...	5%
6.	Handwriting	...	...	5%

The maximum mark is 100.

DACCA

Contribution of Abnormal to Normal Psychology

INDRA SEN

This paper has been stimulated by the symposium on the same subject held last year (1937) under the auspices of the Science Congress. The subject continued almost to work upon my mind for several months and I have sought here to embody my reactions to it.

We would first face a more preliminary question which is involved in the subject and which is also of a much wider application, viz., How to determine the contributions of one department of knowledge to another. The methodological issue is, to my mind, the more important and here it is primarily intended to consider the same rather than determine contributions.

Now, for method, we have two alternatives before us. One might sift through the entire field of Normal Psychology and mark out the important ideas in it and then trace as to wherefrom they had come in there; or contemplate the entire body of knowledge of Abnormal Psychology and determine the points that have been proved according to the best standards of Science. It is here proposed that in the context of the above subject the former might constitute the main method and the latter supplementary to serve as verification for the first and also to supply any omissions made by it.

It is also important to consider the personal qualification of the individuals competent to decide such an issue. Adjudication of the indebtedness of one branch of knowledge to another obviously requires besides the intellectual competency, freedom from prejudicial interests in one or the other. Incidentally, the influence of the sub-conscious prejudices and prepossessions on our so-called dispassionate intellectual judgments is one of the most significant contributions of Psycho-analysis, the most important school of Abnormal Psychology. Therefore neither the professed Psycho-analyst nor the professed critic of Psycho-analysis is the proper person from whom we could expect a correct estimate of the contributions of Psycho-analysis to Normal Psychology. If one surveys the names of the Psychologists living today, one is easily drawn towards a few most outstanding figures. They are the founders of the various schools.

They are geniuses. But there is a relatively much larger number of Psychologists besides them, even though they do not attract attention as forcibly, but their importance for the issue of the present problem is greater. The genius is a man of great concentration or exclusive attention. He does not primarily assimilate, he creates. But this vast group of Psychologists, whom Woodworth chooses to call "The Middle-of-the-Roaders," are characterised by just the right spirit and attitude for assimilating what is of worth in any school of Psychology. Their works easily reveal how freely they have incorporated into the general body of Psychological knowledge facts and laws of mental life discovered by the different schools. McDougall refers to a "Psychological School" among Psychopathologists, who are characterised by a similar catholicity of spirit. The leaders of this school are Morton Prince and Rivers. McDougall affiliates himself to the same school. Some of the best physicians who also belong to the same school are Brown, Hadfield, Hart, Mitchel, Gibson and Healy.

The charge, that they all, "The-Middle-of-the-Roaders" and the members of the Psychological school, are just mediocres will not avail. They are certainly intellectual enough to appreciate when a thing has been proved and they are superior to the genius leaders in being free from party affiliations and being obligations and being anxious to incorporate all that might be of some real worth anywhere.

It will also not be fair to say that this is really deciding the issue by reference to authority. As in a case like this, where one is concerned with the recognised contributions of one branch of knowledge to another, the only proper proof is the consensus of opinion of the experts. We are here, I maintain, not concerned with the determination of the points of essential worth present in psycho-analysis or Abnormal Psychology, whether they have already been adopted in General Psychology or that they are such as are bound to receive recognition in some time. *We have to determine the actual contributions at this time and not the possible contributions and therefore the consensus of opinion of the experts to-day is the only standard to judge the issue of the Contributions of Abnormal to Normal Psychology.*

If that is the proper standard in this behalf then probably not much difficulty will be felt in admitting that the body of psychologists above referred to constitutes the proper authority.

We would also go into another methodological consideration that the psycho-analysts present in defence of their doctrine. It is said that the proper test for the theory of psycho-analysis is the pragmatic test—that

it has grown out of practice (of handling neurotic cases) and that it gives satisfactory results in practice.

The pragmatic argument contends that the test of the truth of a hypothesis or theory consists in the fact that its results should be satisfactory. But are the limitations of the pragmatic method as such not only too well-known to Philosophy and to science to need repetition here? On the strength of pragmatic test alone it is not possible to claim theoretical validity of the principles, supposed to be involved in the practice. In fact a consistent pragmatist will not claim it, as he does not admit the legitimacy of the concept of theoretical validity of the principles for themselves.

Now the actual contributions. The state of psychological knowledge in 1900, opines Woodworth, constitutes the 'back ground' from which all the present-day schools of Psychology have arisen in revolt. It is important they have arisen in revolt and not as further developments of the then existing psychology. Bühler* considers 1890 to be the proper time constituting the turning point in the history of Psychology. But they and in fact all students of psychology are agreed that this background against which the various schools arose in revolt was Associationism.

Present-day general Psychology is widely different from Associationism. Now let us see how these changes have been brought. But not all the new things were necessarily contributed by the one or the other school of Psychology, as many things were discovered by the professed general psychologists themselves. Ward, for example, had as early as 1886 in his 'Psychology' article of the *Encyclopaedia Britannica* presented a view of the normal mind that is in fundamentals perfectly modern. He had not to revolt against Associationism as the various leaders of the different schools have done. His psychology, one can more aptly characterise, as a further phase in the continuous development of Associationism, even though it is radically different from it. Stout and McDougall have primarily just carried Ward farther on. It may also be observed that most of the psychologists referred to above as proper authority are the people, who inherit the tradition of psychology and have sought to further enrich it. They have thus tradition at their back to recommend them for the task of incorporating into their body of knowledge all valuable stuff found anywhere.

Now, following the first procedure of our methodology, let us consider the most essential ideas of present-day psychology by which we distinguish it from Associationism. Our Normal Psychology today definitely

* Bühler, *Krise der Psychologie*.

discards the sensationist and the mechanist principles of older psychology. Mind and human nature are today not conceived on the older intellectualist basis, but as determined by instincts which are purposive strivings. That is to say, mind is conceived after the traditions of voluntarism. Secondly, mind is a unitary principle as opposed to the older atomistic conception of it.

I do not know if anybody will disagree that these two are the most important truths that general psychology today knows of mind. Now let us ask which way have they come to it.

Psycho-analysis certainly contains both of them and it is also true that it is not indebted to general psychology for them. In fact psycho-analysis is least indebted to general psychology, as it has almost all along developed independently, in complete detachment from academic psychology. But have these two truths been passed on to Psychology by Psycho-analysis? In fact both of them had been clearly and in a most comprehensive form propounded by Ward in 1886. Psycho-analysis even today contains them in a very half-hearted manner. As to the mechanist principle, psycho-analysis has even been declared a retrograde step. Mechanism is the rule with Psycho-analysis, but purposivism there is enough in it, though in a disguised form as in fact, it is based on a hormic foundation. And as to the unitary character, no doubt, mind is recognised as an organism but the desires are like entities, which obviously are a disparagement of unity.

If the above observations are correct then it cannot be right to claim that psycho-analysis has transformed psychology from a sterile pursuit into a living science. The remark, however, contains some truth. Psycho-analysis, primarily because of its pan-sexualist theory, though also for the practical success that it attained, has been a great sensation to the modern man. And it is a great achievement of psycho-analysis that it succeeded in setting up a popular vogue of an interest in the subconscious motives and in a way all matters psychological. Psycho-analysis has definitely popularised psychology. In that way it has made of psychology a living science, but that does not entitle one to claim that the fundamental truths too have been given to psychology by psycho-analysis.

Besides the above-mentioned two great truths of present-day psychology, one sees in the subconscious another great general law of mental life, that today plays a very important part in the explanation of a large number of processes. This undoubtedly, understood as it is today, is the contribution of psycho-analysis to normal psychology.

Another important contribution for the conception of psychology as a science has been the psycho-analytical idea of applying the principle of

causation to the entire realm of mind as it is done in Physical Science. Of course, determinism of mind is a psychological determinism. A further important contribution made by Abnormal Psychology is that no sharp line can be drawn between the normal and the abnormal mind.

Apart from these whatever one sees of Psycho-analysis in Normal Psychology is of the nature of application of the law of the subconscious to different mental processes and, as is well-known in a few cases the explanations thus obtained have been particularly illuminating.

Now, one might think of turning to the supplementary method of determining the contributions. We have then to survey the entire field of Abnormal Psychology to pick up what has been proved, even though it may not have yet been assimilated in General Psychology. We have often talked of Psycho-analysis in place of Abnormal Psychology. The reason is that it is the most important part of Abnormal Psychology. Janet's principle of dissociation for the explanation of neurosis and Coué's use of suggestion in the treatment of mental disorders are valuable contributions of the non-psycho-analytical Abnormal Psychology. Further while talking of Psycho-analysis we have ordinarily implied Freud's doctrine but it should not mean that Jung and Adler's work can be discounted. Jung's recognition of the 'tasks' and 'problems,' the ideals, as forces playing an important part in neurosis, psychological types and perhaps more than anything else his collective or racial unconscious are striking contributions. Adler's work, too, has served to emphasize the importance of the mastery motive in man and trace the workings of the inferiority complex. But psycho-analysis is the most important part of Abnormal Psychology and Freud's doctrine is the most important part of psycho-analysis. We would therefore like to detail the numerous valuable ideas that we come across as we traverse the field of Freud's Psycho-analysis.

But are we yet in a position to evaluate it? Has it existed long enough that we might be able to say that it or any parts of it have stood the test of time? Psycho-analysis is, in fact, in a state of active research, almost everything is in a state of flux, therefore, truly speaking, the time is not yet ripe for the consideration of the issue of the subject under discussion. An evaluation of it is then naturally premature. However, it is easy enough to recognise many new facts of mental life, which have been discovered by Freud and which previously used to be simply passed over. These are the facts of Repression, the Unconscious, the importance of Sex instinct and Dream causation. But one easily finds exaggeration of the influence and working of these. But besides these one meets with quite a large number of other new ideas, which are yet in an exceedingly doubtful condition.

This does not imply that they cannot be defended. But just now we want to ascertain, whether with all the defence that can be put up for them, they have been so far able to receive acceptance at the hands of the general body of Psychologists or not. Oedipus complex, *c.g.*, has not been able to do so.

The supplementary procedure has, it may be noticed, served to confirm what we had discovered by the first method and also supplied some additional facts.

In the end I should say that the primary intention of the paper is to determine the general principles and method of determining the contributions of one department of knowledge to another. As to a conclusion to the issue of the subject itself anything more than just this perhaps could not be said that, besides the facts above recognised, all yet is in a state of flux and that the time is not yet ripe for the judgment.

DRL:HI

Book Reviews

INTRODUCTION TO PSYCHOLOGY, by S. Jalota, Professor of Psychology, D. A. V. College, Lahore, with a preface by Dr. G. Bose, Head of the Department of Psychology, University of Calcutta. Published by Humphrey Milford, Oxford University Press. Price not stated.

The author has attempted to introduce young students to the fascinating subject of Psychology. The province of Psychology is a vast one and in view of the rapid development that is taking place its field is constantly widening. But there are certain basic facts and topics with which every student of Psychology should be familiar before he proceeds to follow any specialised course of general or applied Psychology. These basic facts and topics have been presented by the author in this little book in a very interesting way and with copious illustrations drawn from incidents of our daily life. More importance has been given to facts than to theories—that I consider to be a good method, for beginners are liable to be confused and lose their bearing if a plethora of theories be suddenly placed before them.

Though greater details could have been added in almost all the chapters, I am of opinion, that the book is a good introduction to the study of psychological facts. I shall not hesitate to recommend it to the I.A. and I.Sc. candidates of our Indian Universities.

S. C. MITRA.

1938 MENTAL MEASUREMENT YEAR-BOOK Edited by Oscar Krisen Buros, pp. I-XVI & 1-415. School of Education, Rutgers University. Rutgers University Press, 1938. Price 3-0-0.

None will dispute the claim of Prof. Clarence Elmer Partish, Dean of the School of Education Rutgers University, put forth in the foreward to this volume, that this Year-book "is likely to prove a land mark of considerable importance" in the literature and history of mental measurement. The volume is a record of very patient and laborious work. It places at the disposal of the readers not merely a mine of information but authoritative opinions regarding recent publications on mental tests.

The movement of mental testing is daily gaining in importance. In all the progressive countries tests are being applied for determining abilities and attainments of school boys and prospective employees. Numerous tests are being devised and standardised. But tests standardised in one language for one country has to be standardised afresh for local conditions when made use of in another. The selection of the right type of test and its adaptation for particular use are difficult propositions. The Year-book will prove extremely valuable to all users of tests by making available to them expert views on the principles and technique of various tests. The classification of material and indexing are all that can be desired in a volume like this.

The critical reviews of the Year-book will have the effect of checking, as the editor says, authors from publishing inadequately validated tests and of encouraging preparation of "better tests." We commend the Editor's remark that "the tests not accompanied by detailed data on their construction, validation, uses and limitations should be suspect." We are convinced that further improvements as projected by the Editor will greatly enhance the value of the Year-books in future. We will only suggest the desirability of some of the old standard tests on the market being evaluated and incorporated as a special supplement in the next issue of the Year-book.

All students of mental tests will be grateful to the publishers for bringing out this useful volume.

M. N. BANERJI.

LANGUAGE AND MEANING : A critical survey of contemporary psychology and philosophy of language and a defence of the social-affective concept of meaning, by S. K. Bose, M.Sc., M.A., Psychology Department, Calcutta University, pp. 62. Published by the Calcutta University Press in the Journal of the Department of Letters, Vol. XXXII

The paper touches upon the various problems in which a student of the psychology of language is likely to be interested, presents criticism of contending philosophical views on language and discusses a theory of meaning in terms of sociality and affectivity. Students desirous of making a rapid acquaintance with the recent outstanding studies in the field of language will find the paper of very great service. For the research workers the bibliography will prove helpful. The writer has evidently laboured hard in collecting the materials. The selection of works referred to in the paper has been judicious and the criticisms are not beside the

marks. A large mass of materials has been, however, squeezed within a small compass with the attendant defect that at places clarity has been sacrificed and the character of continuity of the theme is lost upon the reader. The theoretical discussion of the question of "meaning" is interesting and has an element of novelty.

G. BOSE.

SECONDARY SCHOOL ORGANISATION, by D. N. Mukerjee, Published by the Indian Press, Ltd., Allahabad. Price 3-0-0.

Though primarily intended for teachers in training, there is no reason why this handy volume should not prove useful to teachers in practice as well.

This book on Indian School Management rises from the background of the author's twenty-year experience in the schools and training colleges in one of the Indian provinces and contains many important practical suggestions for the better organisation of our schools. It is pleasing to note less of the dogmatic air with which such suggestions are usually discussed in the text-books on the subject. The author has done well in beginning with a clear but brief exposition of the general principles of education acceptable to modern authorities and in referring to these again and again throughout the rest of the book.

We particularly welcome the author's emphasis on the need for scientific work in education. He would like to have more of planned research and psychological testing in the schools and we would certainly endorse his views here. The chapter on "Recording progress"—the author has made special study of examination marks—has been very well written.

The book may be said to be up-to-date in treatment of topics under school management and discusses almost all the aspects of school life. The style is clear and easy. One would have liked to see fewer and less lengthy quotations. Some topics should have received more systematic treatment. The book is, on the whole, a good work, and we hope that it will prove useful to many.

H. P. MAITI.

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Notes and News

Psychology has suffered very great loss through the death of Dr. William McDougall in November last year, and of Dr. Henry Havelock Ellis in the early part of July this year. McDougall was 67 and working as Professor of Psychology at the Duke University before his death. Havelock Ellis was living a retired life in Suffolk in his eightieth year when he died. Account of life and works of these two eminent psychologists will appear in the July issue of this journal.

Dr. G. Bose, D.Sc., M.B., has been appointed in February, 1939, as a whole-time Professor of Psychology in the Calcutta University and is the Head of its Department of Psychology. We offer our heartiest congratulations to Prof. Bose. After graduating in Medicine in 1910, Dr. Bose attained within a short time considerable success as a medical practitioner. But he had early interest in Psychology and for some time pursued hypnotism as a hobby. He took the M.Sc. degree in Experimental Psychology in 1917 and was conferred the D.Sc. degree by the Calcutta University on his thesis (which has come out as a book) on Repression in 1921. Dr. Bose has been practising as a psycho-analyst for a long time, and though he is generally affiliated to the Freudian school, he has many original views to his credit. He has designed many new apparatus and is author of books on Psychology and allied subjects. He is very much interested in the study of the Puranas and can claim the credit of giving the student of history a new method of interpreting historical materials. He is the President of the Indian Psycho-analytical Society and is in charge of the Psychological Clinic run by the Indian Association for the Mental Hygiene, Calcutta, at the Carmichael Medical College. He is on the editorial board of the International Journal of Psycho-analysis.

The last annual meeting of the Indian Psychological Association was held at 2-30 p.m., on the 6th January this year in the Government College, Lahore, with Mr. M. N. Banerji in the chair. The Secretary's report, which appears elsewhere in this issue, was read and adopted. The meeting ended with the constitution of the editorial board of the journal.

Dr. D. R. Shendarkar, B.A., B.T., Ph.D., T.D., Professor of Educational Psychology in the Osmania University, Hyderabad, is the President of

the Psychology Section of the twenty-seventh Indian Science Congress to be held next January at Madras. Dr. I. Latif M.A., Ph.D., Professor of Psychology, Forman Christian College, Lahore, is the recorder. We offer our congratulations to both of them. Mr. Jamuna Prasad, M.Sc., M.A., Registrar, Patna University, will preside over the Psychology Section of the next Indian Philosophical Congress at Hyderabad. We congratulate him as well.

The large number of papers contributed to the Section of Psychology of the twenty-sixth Indian Science Congress at Lahore may be taken as an indication of increased interest in the scientific study of the subject in India. The Section met from 2nd to 8th January under the presidency of Mr. H. P. Maiti. There were three symposium discussions, two of which were held jointly with the Section of Anthropology. The total number of papers contributed to the Section were 93, of which 33 were meant for the three symposia. The number of papers on General Problems was 13, on experimental studies on Sensation, Perception and Memory 8, on Education and Tests 12, on Psycho-analysis and Psychiatry 11, on Social Psychology 8, on Child Psychology 5, on Physiological Psychology 3. The symposium discussions will be reported in the two next issues of the journal.

A research section of applied psychology is now a regular feature of the Department of Psychology of the Calcutta University. We have been supplied with the following note about the aims and activities of the section.

"The efforts of Prof. G. Bose and his colleagues, supported by the active sympathy of the then Vice-Chancellor of the Calcutta University, Dr. S. P. Mookerjee, resulted in the starting of an applied psychology section within the department of Psychology in 1938. This section has been entrusted with the work of carrying on investigations in the fields of vocational and industrial psychology and making use of psychological knowledge in the service of the society. At the present stage the applied section is concentrating on the devising of tests for vocational guidance and on the collection of vocational data.

The work of the applied section started on the 27th August, 1938, with the appointment of research scholars and office staff. Since then vocational tests suitable for local conditions have been prepared and administered to school boys for the purpose of standardization. The new Section works under the guidance of Mr. M. N. Banerji. Actual field

work was undertaken on the 1st March, 1939, and it is still continuing. Valuable data have been collected on the subjects of vocational guidance and vocational selection by the questionnaire method from successful professional men.

Besides vocational guidance and selection, the work contemplated to be carried on under the applied section includes study of human factors in industries, investigations in criminology, guidance in the matter of defective children and devising methods of training for the development of qualifications essential for success in each vocation."

Mr. Rajsekhar Bose of 72, Bakulbagan Road, Calcutta, has made a gift of an immovable property worth Rs 20,000/- to enable the Indian Psycho-analytic Society to start a mental hospital. The society has raised a fund of Rs. 3,025/- for the hospital and also Rs. 337. - for helping distressed Austrian Psycho-analysts. The mental hospital will enable the Society to give practical training to students of psycho-analysis. With the help of Rs. 250/- from the society, Mr. T. C. Sinha, an associate member, has conducted a study of the Garos of Assam. The President took up the subject of 'ambivalence' for his presidential speech in the Psychology section at the Jubilee session of the Indian Science Congress.

Dr. Indra Sen, M.A., Ph.D, Professor of Philosophy and Psychology, Delhi University, presided over the Psychology section of the Indian Philosophical Congress held last December at Allahabad. A short summary of his address on "Cultural Science Psychology" will appear in our next issue. There was a discussion on the teaching of psychology in the different Universities of India in the section.

It may appear as curious to many that England has not been very much enthusiastic in the laboratory studies of animals. The first institute for the study of animal behaviour was started only three years ago. Dr. Julian Huxley is the President of the Institute, and its object is to encourage undertaking of research on animal behaviour and to publish the results of research in this field.

Retiring President's Message

On the election of a new President to the Indian Psychological Association I think it is appropriate that his predecessor should record his utmost goodwill to the new President, Mr. M. N. Banerji, M.Sc., B.L. Hence I ask permission to wish our new President a very successful reign. Psychology almost daily enhances its reputation as a wholly indispensable branch of science so that the general public is learning to give it the importance and grant it the homage that it deserves. I feel sure that our new President will add further laurels to the reputation psychology has already earned in India.

OWEN BERKELEY-HILL,
I.T., COL., I.M.S. (RETD.)

INDIAN PSYCHOLOGICAL ASSOCIATION

REPORT FOR 1937-38

The Indian Psychological Association enters its 15th year to-day. It should still be considered to be in its adolescent stage having not yet reached the legal age of maturity. Its principal activity has always been directed towards the publication of the research works done in India on psychological problems. It gives me great pleasure to mention that the articles published in the journal have been receiving increasing recognition abroad and are often referred to by the standard journals of other countries.

A thorough revision of the constitution of the Association was felt to be necessary and last year a sub-committee consisting of Mr. Sen, Mr. Banerji and Dr. S. Mitra, was appointed to propose amendments and alterations in the existing statutes. The proposals put forth by the committee were duly circulated to the members of the advisory committee, many of whom were kind enough to send further suggestions. At a meeting of the sub-committee all these suggestions were considered and a draft was prepared which by virtue of the powers conferred on the sub-committee represents the new constitution of the Association.

In a meeting of the Executive Committee held on November 19 last, the following persons were duly elected to be members of the Executive Committee for the years 1939-41, election being held according to the new constitution.

Members of the Executive Committee

1. Dr. G. Bose, D.Sc., M.B., Calcutta
2. Dr. S. C. Mitra, M.A., D.Phil., Calcutta
3. Mr. M. N. Banerji, M.Sc., B.L., Calcutta
4. Mr. H. P. Maiti, M.A., Calcutta
5. Miss R. Ghosh, M.A., Calcutta.
6. Prof. H. D. Bhattacharyya, M.A., B.L., P.R.S., Dacca
7. Lt.-Col. Owen Berkeley-Hill, M.A., M.D., I.M.S. (Retd.), Ranchi
8. Prof. N. N. Sengupta, M.A., Ph.D., Lucknow
9. Dr. Indra Sen, M.A., Ph.D., Delhi
10. Dr. I. Latif, M.A., Ph.D., Lahore
11. Dr. B. L. Atreya, M.A., D.Litt., Benares
12. Mr. J. M. Sen, M.Ed. (Leeds), Krishnagar (Bengal)

The following persons have been elected to the various offices of the Association on the basis of the majority of votes, for the year 1939-41:—

President : Mr. M. N. Banerji

Vice-Presidents : Lt.-Col. O. Berkeley- Hill &
Principal J. M. Sen

Secretary : Dr. S. C. Mitra

Editor-in-Charge : Mr. H. P. Maiti

The committee desire that there should be more co-operation among the members and that they should suggest means by which the object of the Association may be furthered and the Association may render real service to society.

In conclusion the committee place on record their deep sense of gratitude to the University of Calcutta for bearing the entire cost of publication of the Indian Journal of Psychology conducted by the Association.

Statement of Accounts

1938

Receipts		Expenditures	
Brought forward	...	Rs.	273-8-9
Subscription	...	Rs.	152-6-6
Postage	...	...	Rs. 46-10-0
Clerk	...	...	Rs. 120-0-0
Printing	...	...	Rs. 15-8-0
Stationery	...	...	Rs. 9-4-0
Duftry (Binding charges)	...	...	Rs. 11-14-6
Blocks	...	...	Rs. 14-0-0
Total Rs. 425-15-3		Total Rs. 217-4-6	
Balance...		Rs.	208-10-9

(Sd.) S. C. Mitra,
Secretary.

A Contribution to the Study of Conversion Hysteria

I. LATIF

I shall attempt to discuss, in this paper, some of the aetiological factors in the onset of a specific kind of psychogenic inhibition, by selecting certain material from the case-history of a musician. The case has a peculiar clinical interest in that, whereas the functional impairment of his finger movements had resulted in inability to play upon the *sitar* and the *tablas*, the patient, nevertheless, displayed no functional inhibition in playing the harmonium. Actually, the case was too complicated to be classified under a single pathological entity, such as hysteria or obsession. For our present purpose, however, we shall select only those aspects of the clinical picture which will serve to bring out the symptoms of conversion hysteria.

The patient is a young man of 27, and comes of a highly well-to-do family from an agricultural district of the province. He was sent to our clinic by a qualified medical practitioner with the statement that the patient suffered from no physiogenic disorder. His main symptoms were headache, mental confusion, loss of attention and memory, insomnia, loss of appetite, general depression, palpitation of heart and a peculiar form of functional motor inhibition in connection with his ability to play on the *sitar* and the *tablas*. Of all these symptoms the patient regarded the last as the worst. During the course of our treatment he repeatedly said that if we could only succeed in restoring his ability to play on these instruments, he could forget the rest of his trouble. Nor did he think himself completely cured until his functional inhibition had actually disappeared.

For a long time the patient had been under the treatment of expert medical men as well as unscrupulous quacks. But instead of affording him relief, medicines invariably aggravated his symptoms. He was greatly relieved to hear that chemicals and injections formed no part of our treatment.

Since the patient could neither speak nor understand English, the whole treatment was conducted in Panjabi, which was the patient's, as well as the therapist's, mother tongue. It must be confessed that during the initial stages of the treatment, Panjabi, because of its meagre scientific

vocabulary, appeared to be a somewhat inadequate instrument. Most of our previous Panjabi patients were bi-lingual if not tri-lingual ; so that it had always been possible to draw freely for explanatory purposes on the different linguistic vocabularies of the patient, in order to make up for the deficiency of Panjabi. In the subsequent development of the case, however, the use of Panjabi proved to be a blessing in disguise, in that it facilitated a free flow of associative material on the part of the patient and insight on the part of the therapist. The significance of these observations will become obvious later.

With regard to his family setting, it is important to note that there was strong evidence of an Oedipus complex which was directly responsible for a great many behaviour-anomalies of the patient, and may also be regarded as a contributory factor in the onset of his main trouble. According to his own report, his father had been brutally cruel to his mother. He recalled numerous occasions on which he had entertained feelings of violent rage leading to death wishes against his father. Three months before the death of his father—which occurred two years before—there was a violent family scene in which the patient had openly denounced his father. Indeed but for the intervention of one of his uncles, he would actually have assaulted him. During the three following months, the patient was not even on speaking terms with him who was then too ill to leave his bed on account of an attack of diabetes. At the end of the three months the father died. A curious change then came over the patient which astonished all his friends and acquaintances. In spite of his continual rebellious attitude against his father almost throughout his life time, the patient now manifested strong symptoms of a deep-seated grief. In fact, his grief at the time of his father's death was so violent that he had a fainting fit which lasted for an hour or so. And in spite of the fact that his father had died of diabetes, he felt that he must somehow be responsible for his death. His great regret was that he had not asked his father's forgiveness before he died. The day of judgment in all its terrors now loomed large in his imagination. It haunted him during his waking hours as well as his dreams. He went from one school of Muslim theologians to another to find out if he could by any possibility obtain forgiveness for his rebellious attitude towards his father. The Wahabis (who represent the puritanical sect of Islamic theology) told him that unless his own father interceded on his behalf on the day of judgment, forgiveness was out of the question. This plunged him into a deeper gloom and hopelessness. He gave up his gay clothing, disregarded food and rest, forsook the company of his former friends, and.

after a terrific struggle, stole away from his house and joined a sect of religious *faqirs* at a place about 100 miles away from his home. For a fortnight he lived in the company of these *faqirs* in a graveyard. At the end of this period, however, he got tired of the life of a recluse; and when his brother, after a vigorous search for him, accidentally came upon him, he eagerly responded to his appeal to return home.

Certain facts from the patient's history of sexual behaviour are also relevant to our discussion. During his school life, and later, he had freely indulged in all forms of sexual irregularities : auto-erotic, homosexual and heterosexual. His frequent visits to prostitutes developed in him a strong syphilophobia which continued for a long period in spite of tests which invariably indicated a negative result. These bouts of sexual indulgence were usually followed by brief periods of pious devotion and rigid sexual abstinence. During such periods he would conscientiously say his prayers and would think of turning into a religious recluse. (His actually turning a recluse for a period of a fortnight was subsequent to these earlier fantasies.)

Another symptom which developed during these periods of religious devotion and rigid sexual abstinence was that certain objects and their images haunted his mind in spite of himself. Some of these objects were: the passage of his own car, the nasal passage of his elder sister as she lay on her sick bed, the ink-pot, the bucket, the book, the tall trees, the first two letters of the Urdu alphabet, *alif* and *bey*, the number three, ploughing and sowing seeds, the point where the sky and the earth seem to meet and so forth. There was no regular order in which these obsessional objects and images presented themselves to him ; sometimes the one and sometimes the other occupied his thoughts in an apparently fortuitous manner. But if any of them came into his mind in the early hours of the morning, it would usually haunt him throughout the day or even for several days in succession.

During the course of our treatment, the technique of free association revealed the sexual significance of these objects and images to the patient and his obsession gradually disappeared, though prior to this he was wholly unconscious of their symbolic significance. In fact, after the manner of neurotics, he had regarded his obsession as an evidence of a diseased brain and incipient insanity. Accordingly, he had consulted a *hakim* who diagnosed "nervous debility," due to nocturnal emissions, and prescribed the use of a brain tonic and some powders. The diagnosis of the *hakim* made him exceedingly panicky. From this time on his life became a hectic race from one physician to another. But medicines only served to aggravate the symptoms.

Chance threw him at this time in the company of an attractive youth who was a *sitar* player. A Platonic friendship grew up between the two. The patient now threw himself with an extraordinary enthusiasm into the task of acquiring skill in playing the *sitar*. In order to accomplish this purpose, he engaged the services of the best tutor that money could procure in his town. His enthusiasm for music earned him the severe disapproval of his family who associated music with low-class professionals such as *mirasis* and disreputable women singers and dancers. The patient, however, persistently disregarded the opinion of his family on this subject.

It must be noted that his earliest musical instrument was a harmonium which he had picked up during the course of his school days. This he could still play astonishingly well when he came to us. But ever since the time of his new friendship, the *sitar* became his ruling passion. Later on, at the suggestion of his tutor, he took up *tablas*. According to his own report he would play on the *sitar* and the *tablas* for hours, and often for the greater part of the night. (In fact, the patient himself said "the whole night.")

Curiously enough, while practising on these instruments, the patient would invariably shut himself up in his room, and would ordinarily refuse to allow anyone to come in. As a rule, he avoided playing before an audience, even when his skill in playing had been acknowledged by the musicians of his town. (It is important, however, to note that his performance on the *tablas* did not excel the skill of an average amateur.) This idiosyncrasy in preferring to play the *sitar* in the privacy of his own room and his aversion to playing for an audience, roused our clinical suspicion, especially when he told us that although he was continually in demand by local musical clubs, he had, after a tremendous resistance, only once yielded to the persuasion of his friends to play at a musical concert in company with other performers. And, even on this occasion, he carefully hid himself behind the other players so that he might not be observed.

Two explanations of this peculiar behaviour suggested themselves :
(a) In the first place, we tried to explain his reluctance in playing before an audience as the natural social embarrassment of an amateurish musician.
(b) In the second place, we attributed it to the fear of social disgrace and the religious taboo attached to music.

With regard to the first factor, it may be remarked that at this time the patient enjoyed the reputation of being one of the leading *sitar* players of the town; and, what is more, he really believed so himself. In spite of the contributory nature of the second factor in the onset of his functional

disorder, it does not explain why the patient could still play in public on the harmonium.

We now come to the critical point in the symptomatology of the patient. When he was at the very apex of his musical proficiency with the *sitar*, his former tutor visited him and congratulated him on his extraordinary skill. He specially praised him for his skill in manipulating the plactrum in which the tutor said that even he, his master, had been totally eclipsed by him. Twenty days after this incident the patient discovered to his great distress that the movement of his finger which had been the object of his tutor's applause, was very seriously inhibited. This was the beginning of the patient's functional inhibition. During its initial stages, this inhibition took the form of a compulsive doubt that his plucking was incorrect. This was gradually converted into a total inability even to touch the strings of the *sitar*. Whenever he attempted to play on the *sitar*, his hand grew heavy, and his arm stiff and powerless. At the time he came to us his finger would lightly hover over the strings and even with the strongest effort on his part could not be forced to touch them. It is significant to note that the same finger, which in spite of his effort would refuse to come into contact with the strings of the *sitar*, could, with surprising mobility, go through the same movements in contact with the side of the table at which he sat in our consulting room.

Shortly after this functional disturbance, his ability to play on the *tablas* underwent the same fate. The only instrument which he could now play was the harmonium.

It is also worthy of note that his former obsession, which we mentioned in the opening pages of this paper, and which had to a great extent disappeared during his craze for this instrument, now began to reappear.

For a thorough analysis of the aetiological factors of this functional disturbance and the symptoms consequent upon it, we shall entirely confine ourselves to our clinical material.

(1) We have already referred to the factor of social disapproval and religious taboo, and have pointed out that, though these may be regarded as contributory conditions, they cannot account for the fact that the patient could still play the harmonium without the slightest difficulty.

(2) In the second place we cannot omit from the aetiology of the patient's disorder, his acute sense of guilt resulting from his conscious and unconscious death-wishes against his father. In the ordinary course of pathological manifestation, this would naturally result in the inhibition of a task in which one was achieving steady recognition; or at least, in rendering him psycho-

logically vulnerable to further complications of which the inhibition may be regarded as a specific manifestation.

(3) It must also be recalled in this connection that his functional disorder chronologically dated from a few weeks after his former tutor had praised him for his extraordinary skill. The influence of praise in intensifying a neurotic symptom in persons suffering from an unconscious sense of guilt has been duly recognised by the father of psychoanalysis. Through rich and varied clinical evidence he has clearly demonstrated how the unconscious sense of guilt, under the influence of praise and success in such patients, produces the intensification of their symptoms and the suffering that accompanies it. To quote his own words: "It often needs only a word of praise of their behaviour during cure...to bring about an unmistakable aggravation of their condition." Again, "The ego is not allowed to carry on those activities, because they would bring success and gain." ¹⁰

It is true that Freud is speaking here of an already existing neurotic symptom. But in the light of the vast clinical data available from various sources, the psychology of the genesis of some neurotic symptoms in a large number of cases is exactly the same. The praise or success very often serves the function of the last straw which breaks down the resistance of the ego to the outbreak of a neurotic disorder.

But in spite of the importance of this factor in the aetiology of the present case, which we duly recognise, there is still one fundamental difficulty which reduces this factor to the level of a secondary condition. This difficulty is so often referred to that the patient could still play upon the harmonium in a most skilful manner. In the second place, his performance on the *tablas* was only of a mediocre quality. Finally, although the patient's insight into the mechanism of the factor of praise and success did afford him some relief, it did not bring about his cure.

Neither the factor of social and religious taboo nor that of praise and success could therefore completely explain the aetiology of the patient's disorder.

We were accordingly led to inquire into the symbolic significance of the *sitar* and the *tablas*. What did these instruments represent to the unconscious of the patient? It was in this connection that the Panjabi language, with all its characteristic vulgarities, obscenities and slang expression, came particularly to our aid. In response to the stimulus word '*sitar*,' the patient freely associated the following significant material:—

The first significant association was a vulgar street song which was popular in certain rural quarters a few years ago. Its Panjabi title which

also is its first line, is, "*Tumba vajda e nan.*" *Tunmba* is a crude stringed instrument; and in the original song it manifestly represents a female. In this song a senile lover bemoans the fact of his impotence in affording sexual gratification to his youthful partner. It must also be noted that the Panjabi verb "*vajana*" (to play upon) is a common vulgar expression for an aggressive sexual assault.

Another significant association of the patient in connection with the *sitar* was the following vulgar joke which he related with profuse apologies: A great *sitar* enthusiast, when asked by his friends why he played (or practised) upon his *sitar* with so much zest, replied: "Because I want to learn it." The point of the joke consists in the ambiguity of the Panjabi word for learning, which in the feminine gender (in which the instrument of *sitar* is spoken) is *Sikhni*, which also means a Sikh woman.

The symbolic significance of the *sitar* thus became obvious to us. It represented to the patient's unconscious a female sexual partner. This interpretation gains additional support from the patient's manner of playing the instrument in the privacy of his room, and his strenuously avoiding any public display of his skill in this instrument. In other words, this pleasure was too guilty to be enjoyed openly.

Similarly in connection with the *tablas* highly significant material came to light. The *tablas* represented to the patient's unconscious the buttocks of a boy. To play upon any one's *tablas* meant to him, in accordance with a common obscene joke current in boy's schools, to attempt a homosexual assault on somebody.

Both these explanations neatly fit into the sexual pattern of the patient's biography, and are based on his earlier homosexual as well as heterosexual indulgences.

Soon after this, the psychogenic nature of his functional inhibition became clear to the patient. He now clearly understood that among other factors of a secondary importance, there was the fundamental factor of the erotogenicity of his fingers, which had interfered with this specific motor function. In other words, because of the symbolic significance of these instruments to his unconscious, he was sexualised to his very finger tips. Consequently, his ego was forced to renounce this function, since it represented to him the performance of a forbidden sexual act.

With his insight into the nature of his case, his inhibition disappeared.

In conclusion, we may state that this case is a clear illustration of Freud's amazing insight into the nature of certain cases of psychogenic inhibition which he has stated in the following words :—

"It has been discovered as a general fact that the ego-function of an organ is impaired if its erotogenicity—its sexual significance—is increased. It behaves, if I may be allowed a somewhat vulgar analogy, like a maid-servant who refuses to go on cooking because her master has started a love affair with her."³

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LAHORE.

On the Questionnaire Method in Psychology

PARS RAM

Introduction

The questionnaire method of inquiry has, of late, been extensively used in this country for purposes of collecting facts of psychological and pseudo-psychological nature. The extensive use made of the questionnaire is not at all surprising. There are many incentives for use of this method. In this country there is very meagre provision of mechanically fitted Psychological laboratories for the students wishing to do advanced research work. Except in a few individuals the psychological genius of this country has not been able to express itself in brass apparatus. In the absence of suitable apparatus the psychological observer has to fall back on the methods requiring little or no mechanical equipment, and what method could be more promising than the one requiring the use of mere paper and pencil. Hence the questionnaire method attracts the novice in the field. For, instead of following the labour and effort involving processes of personal observation, the novice thinks that all that he has to do is to prepare detailed and searching questions on the topic of inquiry, arrange them under proper headings and leave enough blank space on the paper for replies and distribute the printed sheets of the question to the people whose introspection and opinion are to be secured. He visualizes people, impressed by the thoroughness of his questionnaire and sincerity of scientific spirit, searching their minds to give adequate and correct answers to the questions. He imagines that within the short space of time he will get genuine reactions of a large number of people to his questions and will be able to treat the data statistically.

Again emphasis in psychological inquiry has shifted to higher mental processes and total personality. Character, temperament, attitudes, organisations of the total personality and similar other topics attract the attention of the research workers. In this field case study method probably will give the best result. But the impatient enthusiast feels that he must be able to probe into the character of thousands of people in a short time and makes a short cut to his goal.

On the basis of the questionnaire inquiries, important statements have been made about the habits and aptitudes of communities and groups. Since such statements come from people who are supposed to be experts in their subjects, these are readily accepted by that section of the community who always like to base their opinions on what the experts have to tell them. Thus the results of the questionnaire method can be of far-reaching significance in influencing the public opinion. In spite of all this, very little care has been taken to determine as to how far can the findings of the questionnaire be regarded as valid and reliable. In the opinion of the author of this paper great attention should be paid to the improving and refining of the method of collecting data in Psychology. That is because it is more difficult to repeat observation in Psychology than in any other science. Psychological facts observed under limited conditions are apt to be broadcast as the 'truth.' This makes it incumbent on psychological workers to be very cautious in their statements and be very critical of their technique of observation. It would not be out of place to suggest that a learned body like the Indian Psychological Association should make it their special task to take stock of all the techniques of observations and subject them to a logical examination from time to time.

Problem

In this paper the following two problems of the questionnaire methods have been examined on the basis of a considerable experience that the author has had in using the questionnaire:—

- (1) What is the attitude of the persons, to whom the questionnaire is addressed, towards the inquiry?
- (2) Is there any stability in the responses to a questionnaire?

I. Attitude to the Questionnaire

In 1933 a questionnaire on '*The influence of examinations on the pupils*' was addressed to 200 school teachers and inspectors all over India. An addressed and stamped envelope was enclosed to each addressee to facilitate reply. Only 30 replies were received. In 1937, 80 people were addressed a questionnaire on personal emotional problems to which only 19 replies were received. Thus no more than 25% of the people who were invited to co-operate cared to reply and the facilities of providing stamped and addressed envelopes did not make them much enthusiastic about the questionnaire.

Some of the persons were later on interviewed by the author with a view to knowing the reasons for their indifference to the questionnaire. Pressure of work, mere laziness and negligence were given by some as the

reasons for their inability to reply. The answers of some of the women addressees indicate different motives for indifference. They described the personality questions as touching on delicate points of personal habits. Even when the putting of the name and address on the questionnaire was left to the option of the addressee some of them could not see their way to answering the questionnaire. It seems that such people feel as if the words and phrases that they use to describe their state of mind are part of their selves. Again many questions arouse suspicion and resentment to such an extent as to arouse unconscious defence against the questionnaire. In such cases responses are bound to be very artificial.

The author used Thurston's Personality Questionnaire with a number of people seeking psychological advice on their personal problems. The purpose of the questionnaire was to get preliminary information about the emotional habits of the person seeking advice. After a few interviews it would become clear to the author that the replies put down on the paper by the patient were in many cases exactly the opposite to his actual state of mind.

Against this there is another type who takes genuine delight in self-examination and is prepared to follow even the minutest direction for accurate answering. He derives 'narcissistic' gratification from self-examination and feels delighted in putting down the facts of his personal life on paper.

Lastly, there are those who can take an objective attitude towards the personality questionnaire but are baffled on account of (1) the vagueness of the question, (2) very sharp introspection demanded by the situation suggested in the question, or (3) the question not being answerable in categorical 'yes' or 'no.'

These observations suggest that replies to questionnaire demanding detailed self-examination cannot be very reliable. This is because of the different attitudes towards self-examination that the people of different temperament seem to have. The psychologist who frames the questions has a certain level of insight into the problem which the layman to whom the questionnaire is addressed may not possess. Hence the answers are likely to be the result of defence and imperfect appreciation of the psychologist's point of view. Questions demanding quantitative gradation can certainly not be attempted on a large scale. The last observation was suggested to the author when he asked an undergraduate class to inspect their imagery and grade the same as very clear, clear, etc.

II. *Stability of Replies to a Questionnaire*

(a) 57 first year men students, ages ranging between 14 and 19, were asked in June, 1937, to reply to the following four questions pertaining to

their hobby interests: (I) What hobby or hobbies would you choose to cultivate during the next session? (A list of hobbies was supplied.) (II) When did you start taking interest in the hobby of your choice? (III) How much time per week are you prepared to devote for the hobbies? (IV) What is your father's hobby? (In the absence of father, answer this question about your guardian.) Of these questions, No. I is subjective personal; Question II is factual personal; Question III is again subjective personal; and Question IV factual personal.

In October, 1937, the same students were asked to reply to the same questions almost under similar conditions. Some of them informed the author that they had already answered the questions. They were told to reply to these questions exactly in the same way as they had done on the previous occasion. The author was convinced that the students were genuinely co-operative on both the occasions. The results of the two tests are given below :—

TABLE I

Changes in the answers to the 4-item questionnaire by 57 1st-year students in second reply

Question	Total Answers in June, 1937	Changes in October, 1937	Percentage of change
I	57	19	33.3 %
II	38	8	21.06 „
III	30	9	30.00 „
IV	57	3	5.26 „

(b) 54 students answered the following questions about their religion in June, 1937 :—

(I) What is your attitude towards religion? Would you describe yourself as (1) devoted to the observance of religions practices; such as meditation, prayers, reading of the scriptures, or (2) anti-religious, or (3) indifferent to religion?

II. What books on religion have you studied so far and with what appeal?

III. What events in your life have determined your attitude towards religion?

Of these question, II elicits certain information and is factual; and I and III elicit opinion.

The same questions were repeated in October, 1937, and changes in replies were as follows (*vide* Table II).

TABLE II

Question	June	Changes in Oct., 1937	Changes in %
I	54	24	44.4%
II	54	4	7.4%
III	54		12.96 %

12 adults, (men above 30 years of age and women above 25) were given 86 item questionnaire on fear and anger in November, 1937, and were given the same questionnaire in February, 1938. The questionnaire consisted of ordinary situation arousing fear or anger. The subjects were asked to indicate the degree of their fear or anger. They were also asked to check the diseases they had suffered from in their childhood.

The following table gives the changes in replies.

TABLE III

Total Questions	November, 1937	Changes in February, '38	Percentage of changes
Questions on Fear	528	26	4.92%
Questions on Anger	504	23	4.56%
Checking of Diseases	60	3	5.00%

The replies of the junior College people are more stable so far as the questions of the stating of facts is concerned. The replies become less stable when an opinion or a judgment is to be given as a reply. Answers involving remote memory too are not very stable. In contrast to this the replies of the adults show remarkable stability in spite of the fact that they had to answer a comparatively involved and complicated questionnaire.

Conclusions

The above-mentioned observations on questionnaire method were suggested while the author was assessing in a rough and ready way the nature of the replies to a questionnaire. The problem merits a more

systematic inquiry. The following conclusions are suggested by a preliminary inquiry reported here. and it is hoped that these conclusions will be re-examined in the light of further work on the subject. The replies of the adults seem to be more stable than those of the junior College students. Again, amongst the junior College students replies to the questions demanding factual data show greater stability than the replies demanding opinion, a judgment, introspection or remembering of the remote events of personal life. As an aid to personality study this method does not help very much in the diagnosis of the individual cases, but when used on a large scale this method can help only in giving generalised abstracts and may suggest a classification of human beings. Again, as a method of case history it can be used only as an additional aid to a more intensive method of studying the individual. The personality questionnaire can be used only to elicit further information on a point suggested by interviews and case study. The result based on the mere questionnaire replies cannot be very reliable. The chief value of this method, therefore, lies either in giving confirmatory evidence for a hypothesis already suggested or in suggesting a new line of research for more intensive study. The primary object of this paper was to raise rather than answer problems, and I will suggest a few which merits further investigation :—

I. What is the difference between the replies of the experts in a subject and those of laymen ?

II. Questionnaire replies in relation to the I. Q. of the subjects. In other words, are the replies of the people with superior I. Q. more stable than of those with a low I. Q. ?

III. How do language and phrases of the questionnaire influence the stability and validity of the replies?

Psychological Aspects of Some Customs of the Sansi Tribe

A. H. JAMEEL ALAWI

Introduction

There are certain facts which Freud has used to support his theories. They come from sources where they cannot be said to have been distorted. These are the facts obtained from the study of savages. In studying races which are more primitive we shall obtain facts which are less distorted than similar products of more highly civilized races.

The vagrant and the criminal tribes form an exceedingly interesting section of the population of the Panjab. They are interesting not only because they have to a special degree retained their aboriginal customs and beliefs, but also because each tribe is probably aboriginal in its ultimate origin. A complete record of their manners and customs would probably be of great value from the psychoanalytical point of view.

The criminal tribes registered under the Criminal Tribes Act are the Minas, Bilochis, Bawarias, Harnis, Sansis, Phakhiwaras, and Gurmangs. These are outcastes, and feed on the fox, jackal, tortoise and such unclean animals. Among these criminal tribes the Sansis are of special interest for psychological study. They are hunters and live a more or less vagrant life in the jungles and are often addicted to crime.

The Sansis are known by various names, such as Sansi, Harbura, Bheria, Bhanu, Chedkut, Kikan and Kanjar, and assume at their convenience titles like Nat, Perna, Bazigar in order to conceal their identity.¹ The Bhedkuts or the Sheepkillers consist of wandering Sansi gangs who have retained their aboriginal customs to a very great extent. We will take this particular group for our study.

Origin of the Tribe

All the Sansis trace their origin to Sans Mal who is said to have been the son of a Rajput woman who lived somewhere in Bhatner in Bhatiana, a Rajput state on the banks of the dry Ghaggar. His father was a low

caste man. Sans Mal was born in the jungle to which his mother's perverse alliance drove the woman under caste rules.² This opinion is further strengthened when we consider the fact that the Bhedkuts call themselves Bhatti Rajputs. They all use a special word, *viz.*, "Bhatwa," while addressing any member of their clan. In Rajputana they call themselves Bhart or Bhat and are the hereditary genealogists or bards of the Rajputs. The fact that bards are Bhats can also be shown by the saying of a famous Panjabi poet :—

(Waris Shah kalyan adi kithon sikhvei Juth khadia kise bhat deai)

Now, Bhatwa, Bhart, Bhat, or Bhatti are one and the same thing, and are all Rajputs. The Bhatti Rajputs are descended from the lunar race which was intimately connected with the Budh or the Bhed, *viz.* the sheep. This is the totem which is believed to be the ancestor of the Bhedkut clan.

Psychological Interpretation of their Customs

A careful study of this primitive group will show that many of their customs are due to the Oedipus complex. If we study the Bhedkuts more closely it will at once be clear that they eat mutton on special occasions, *e.g.*, while performing certain ceremonies. The sheep is a taboo for them. The basis of a taboo is, as Freud says, "a forbidden action for which there exists a strong inclination in the unconscious."³ We have also seen that the sheep is believed to be the ancestor of this tribe and in fact they prefer to call themselves Bhedkuts rather than Sansis. The Bhedkuts are afraid of the sheep, *i.e.*, they have acquired a sheep phobia. Now the question arises : why are they afraid of sheep ? Freud in the case history of little Hans, who was afraid of horses, has shown that he had replaced his father in his unconscious mind by a horse. This displacement, which enabled a conflict due to ambivalence to be resolved, was made possible at little Hans's early age, because the inborn traces of totemistic thought can still be easily revived.⁴

Primitive people are no better at thinking than children. The sheep is their ancestor or, by the process of displacement, the sheep is a substitute for their father whom they have a strong inclination to eat. The sheep has become a taboo because of an ambivalent conflict. In view of these observations, *viz.*, complete identifications with the totem animal and the ambivalent affective attitude towards it, we consider ourselves justified in substituting

the father for the totem animal. The result of this interpretation is remarkable. If the totem animal is the father, then the two main commandments of *totemism* agree in content with the two crimes of Oedipus.

In spite of the dread which protects the life of the animal as being of kin, it is necessary to kill it from time to time in solemn conclave and to divide its flesh among the members of the clan. The origin of this curious custom in which all the members of the clan assemble to eat their father is this : When the jealous father, according to the theory of Darwin, had driven the young brothers out of the herd, the expelled brothers joined forces slew and ate the father. Of course the cannibalistic savages ate their victims. The totem feast which is mankind's first celebration would be the repetition and commemoration of this memorable criminal act with which so many things began—social organization, moral restriction and religion. "This primal murder afterwards was regretted by the sons and the guilt produced prevented their enjoying the incest which prompted the deed and prevented further murder."⁵

This theory is strengthened by the historical fact that Sans Mal and his family were really turned out of the city by their father on account of adultery. So naturally they acquired a hatred against their father on the basis of sex.

We can also notice ambivalence of emotions when some one dies. The Bhedkuts fill the mouth of the dead body with as many silver coins as possible ; and when they put the body in the grave, they fix it with iron nails, so that the dead man may not disturb them any longer. This is indeed due to the hostility hidden in the Unconscious behind the tender love that exists in almost all cases of intensive allegiance to a particular person. The defence against this hostility is accompanied by the displacement towards the object of hostility, *viz.*, the dead. The defence process is called projection. The primitive and remorseful character of this emotional reaction manifests itself in their being afraid of the dead.

The manner in which their "panchait" is held throws further light on the content of the Oedipus complex. All the members gather in a circle with their chief or Lumbardar in the centre. He has a weapon or staff called "Bhalla" in his hand. This Bhalla must be passed on to the member who wants to speak. At the end the Lumbardar pronounces the decision with his staff or Bhalla in his hand. This staff named "Bhalla" is the symbol for the penis, which is also called "Bhalla" by them. Now the chief, or the father in prehistoric times, was dreaded on account of his large penis. This was the sacred symbol for power. To have a Bhalla in one's hand means power or authority and sexuality.

The Sansis can be compared with those suffering from compulsion neurosis, in whom a castration complex plays a very great part. It is quite possible that castration itself was in prehistoric periods of the human family a reality. This act was performed by the father in order to avoid further disturbances by means of a sword-like weapon. This weapon then became for the young brothers an act of fear, hence a taboo and a storehouse of great power. The greatest oath that a Sansi can take is on the sword-like weapon. He says this : "I take an oath on this weapon—the most sacred symbol—and if I prove disloyal, may I be castrated." We ordinary people take an oath by God, the All-powerful Being. The root of this oath is also the fear of God.

We can further see this castration complex in the disputes of the Sansi men and women. These matters are also decided by the chief, who after giving a decision takes a piece of straw and puts one end of it in 'gur' or sugar and then breaks it. This decision is final. This decision can never be changed because the man's fate has already been decided by castrating him—the straw representing the penis and the 'gur' representing the vagina. Again the same process is repeated when two or more persons have a claim upon a single woman. The decision is given by the chief in favour of one person and the others have no right to enjoy the woman. They have been castrated and so cannot enjoy sexual intercourse. The straw has been separated from the 'gur' or vagina and thus is devoid of all sweetness and tastes of a sexual nature.

The second crime of Oedipus was incest. We can easily find trace of this crime in the same tribe. The Sansi women very commonly prostitute themselves, and this is not considered a sin at all. In the absence of the husband the brothers have the right to use the wife. But in order to avoid incest there are very strict rules. The father after marrying his daughter is not allowed to eat or to sit for a long time in her house. When the son reaches puberty he must lead an independent life. One cannot marry his mother's relatives. Most probably for this very reason the two tribes of the Sansis, *viz.*, the Kalka and the Malka, do not intermarry.

During marriage ceremonies a sheep is killed, its flesh is distributed among the members and the bride's clothes are stained with its blood. This ceremony is called the "Mardana." It means that the child has acquired sufficient strength to destroy the power of his father and is able to perform sexual intercourse, as his father used to do.

The ceremonies connected with the death of a mother are very peculiar. The husband cannot touch the body of his wife. The son puts in her mouth some silver coins. He puts her body in the grave with all sorts of

toilet requisites, *e.g.*, comb, oil, looking glass, etc. He also places with them a long stick, which in other words is "Bhalla," the symbol for the sexual organ. This is done with the idea that she must not lead a solitary life in the grave. When this is done, he gives a feast to his community. According to these ceremonies, known as the 'Daruda,' the mother now becomes the sole property of the son. The son has given her the most precious gift, *i.e.*, his staff which means his penis. We find the same idea in their age-old tales in which the step-mother falls in love with the prince, who, when he does not act according to her wishes, is exiled by the king.

Conclusion

The study of this semi-savage tribe is of peculiar interest for us, for we can recognise in their psychic life an early stage of our own development. Primitives can very well be compared with neurotics. These customs are sexual in origin. Just as the rituals of the Compulsion neurosis are the result of the Oedipus complex, and are sexual in origin, the ceremonies of the Sansis are connected with the sexual life of the tribe and like dreams are always distorted.

Acknowledgments

In concluding this paper I wish to place on record my acknowledgments of the courtesy of the D. C. for Criminal Tribes, Lahore, who has kindly supplied me with much information. I am particularly thankful to my friend, Mr. A. K. Niaz, who has helped me in writing this paper. I am also indebted to Ch. Kakku, Lumbardar of the Bhedkut tribe, who has supplied me with information about the origin of certain customs.

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On the Stimulus-Response Relationship in Dreams

M. M. MAKHDUM

Besides instigating dreams, peripheral stimuli set up responses which constitute a part of the manifest content in dreaming. Five forms of the relationship between such responses and stimuli can be distinguished as follows. :—

I. A stimulus is represented in a dream by a sensory content.

1. The sensory content is of the same quality as it normally occurs on the stimulation of a given sense-organ in the waking state.
 - i. Normal perception of the sensory content (*Form 1*). *E.g.*, a subject of mine reports a dream in which he felt thirsty. He took glass after glass of water without feeling relieved in the least. Then he woke up, to find himself very thirsty. In the dream thirst was experienced as such.
 - ii. Abnormal perception of the sensory content (*Form 2*). *E.g.*, in another dream he saw three snakes standing on end. As he awoke the snakes changed into the three upright pieces of wood forming a part of the chair lying before him. He had been sleeping with the eyes partially open, which were then stimulated by the chair. Here a sensory content was mis-perceived.
2. The sensory content is different in quality from that which is normally aroused by the stimulation of a given sense-organ (*Form 3*). See the dreams Nos. 1 and 2 on p. 88.

II. A stimulus does not arouse a sensory content.

1. It is only referred to in a dream (*Form 4*). See the dreams Nos. 3 and 4 on p. 88.
2. It arouses an affect.
 - i. It gives an affective quality to a dream (*Form 5* ; it is made the subject of another paper).

- ii. The affect does not seem to be accompanied by a dream in some cases. *E.g.*, a loud sound was suddenly produced close to a sleeping person. He trembled a little, woke up, and complained of anxious depression. When told that a noise had just been made, which might have been the cause of arousing him, he at once recognized that his feelings were like those which he had experienced, of course rarely, when startled by a sudden loud noise. Since cases as this are not accompanied dreams, they will not be referred to further.

The first two forms of the relationship are recognized even by the lay-man. In the next two forms the responses in their relation to stimuli are so radically different from those with which we are familiar in our waking state that they do not indicate the nature of their source much less enable one to trace them back to their specific stimuli. Consequently, the third and fourth forms have escaped attention of many. Although Scherner and Vold, each of whom has separately investigated a large number of dreams, have taken into account the third form, and the latter have referred to the fourth form also, the question of these relationships still remains open, since, so far as I am aware, no connection between a stimulus and such a representation has been reported to have been observed directly. The following dreams conclusively reveal the relationships in question. The dreams were reported by the same subject, D, whose other dreams have been published in a previous issue of this Journal. Although he has made available a number of dreams bearing on the point, only a few are reproduced here, since all of them ring changes on the same text.

Usually he falls into sleep and wakes up gradually through various degrees of drowsiness. Preliminary to the onset of a long-period sleep, he has in quick succession some short naps each lasting for a few minutes. The first two dreams and others of the same type occurred in these naps. The second type of dreams illustrated by Nos. 3 and 4 occurred towards the end of the long-period sleep.

No. 1 : D dreams that he is in a bath-room. A very rough towel is hanging by the wall in front of him on a level with his forehead. He rubs at the towel, saying how rough and troublesome it is. Gradually the towel approaches the forehead, into which it is transformed. Upon this he wakes up to find himself scratching at the forehead which is the site of some irritation.

No. 2 : "I saw some words written vertically on the air in block letters just before me. Probably the words were, 'I already know that.'"

A little after, the lower half of each letter became bent at an obtuse angle to the upper half, the lower half pointing towards me. Then I awoke. Before I opened the eyes and while still in a drowsy state I felt pain in the right foot up to the ankle. The course of pain resembled exactly the shape of the letters, the memory-image of which was realistically persisting at the time."

No. 3 : D dreams that he and a friend of his are in the upper storey of a house. His friend has a pamphlet with him. They are going to read it. D asks his friend to see that the door of the room is fastened lest someone should intrude upon them. D goes on insisting on this, pointing to the door, till he wakes up. He finds that his servant is knocking at the door. To D it appeared that the knocks began after he had woke up. But the servant had been knocking for a fairly long time before D was aroused.

No. 4 : In another dream D finds that he has got up from sleep. He looks at the alarm-clock and discovers that it is about to ring. He feels very anxious to close down the alarm before it has begun to ring to save inconvenience to his companions who are sleeping nearby. He thinks over it again and again till he wakes up. Then he hears the alarm ringing. On examining the clock he learns that it has been ringing during his sleep, since it has now almost run down. Before going to bed he had wound up the alarm to its full capacity.

The first two dreams show beyond doubt that sometimes a stimulus is represented by a sensory content, usually visual, which does not belong to the sense-organ excited by a given stimulus. In response to a stimulus which would arouse, *e.g.*, organic sensations when one is awake, the dreamer perceives an object in front of him. The localization of the object beyond the observer's body in a dream, even though it has been set up by an organic stimulus, is but an illustration of the characteristic of vision which consists in the projection of its contents in space. Incidentally, the first and similar other dreams² suggest that the dream distortion is not an exclusive function of the censor. No censorship was exercised in this connection, since each symbol was transformed back into its corresponding object without a show of resistance on the part of the subject.

The last two dreams demonstrate how a stimulus without its sensory representation can still produce an effect on the dream experiences. One may conclude that a stimulus influences the subconscious processes, that the subconscious mind somehow recognizes the stimulus effect, which influence is reflected in the manifest content. It throws light on the setting of dreams in which contents, from the outset, converge upon, and

flow into a definite end-result occurring in response to a stimulus, which disturbs the dreamer out of sleep. The celebrated dream of Maury reported by Freud is in point here :

"He was ill in bed; his mother was sitting beside him. He dreamed of the Reign of Terror during the Revolution. He witnessed some terrible scenes of murder, and finally he himself was summoned before the Tribunal. There he saw Robespierre, Marat, Fouquier-Tinville, and all the sorry heroes of those terrible days; he had to give an account of himself, and after all manner of incidents which did not fix themselves in his memory, he was sentenced to death. Accompanied by an enormous crowd, he was led to the place of execution. He mounted the scaffold; the executioner tied him to the plank, it tipped over, and the knife of the guillotine fell. He felt his head severed from his trunk, and awakened in terrible anxiety, only to find that the head-board of the bed had fallen, and had actually struck the cervical vertebrae just where the knife of the guillotine would have fallen."³

All through the dream the contents have been determined under the influence produced by the stimulus in the subconscious. From the very beginning the manifest content was related to the stimulus-effect which for some time did not find a direct representation as in the dreams Nos. 3 and 4. As the stimulus-representation emerged into consciousness, the contents dramatically developed towards it. Such dreams are not thrust into consciousness "in the time elapsing between the perception of the waking stimulus and the moment of actual waking,"⁴ as La Lorrain and Figger had held. But they occur during the interval of time between the onset of a stimulus and waking.

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The Influence of Colour on the Estimation of Area*

S. C. MITRA AND ANATINATH DATTA

It is our daily experience that the estimation of areas is more difficult than that of lines. The ability of comparing lines is simpler and is, therefore, found to be well-developed in young children. But the ability of comparing areas is a complicated one and is, therefore, found to be poorly developed even in most adults.

The problem of estimating areas has attracted the attention of a number of workers, *e.g.*, Baldwin & Shaw,¹ Bolton,² Hollingworth,³ Peters,⁴ Samanta,¹⁰ Wagner,¹¹ Warren & Shaw,¹³ Williams,¹¹ etc. They found from their studies that there is a tendency of overestimating the figure to be judged with the standard irrespective of the shape of the figure or of the standard. This tendency of overestimation of figures is greater when the figure is large. This is corroborated by the findings of Mansvelt.⁷

The effect of colour on the apparent size of the object was also investigated by Warden & Flynn¹² upon 6 college students using eight rectangular cartons, of identical size but of different colours, in eight different arrangements, and by Gundlach & Macoubrey¹ upon 35 University students (12 men and 23 women) using eight colours again. But the conclusions in the two cases are not identical. The former experimenters concluded that colours do not affect the estimation of sizes while the latter workers concluded that colour, especially its 'luminosity,' affects the apparent size, the lighter objects appearing larger. Franken & Larrabee² performed experiments on 168 students using eight paper cartons and eight tin cans of equal size but of different colours. They found that 'lighter' colours appeared larger. Lindemann³ and Pfeiffer⁴ also found that with greater brightness the size appeared larger.

The present investigation was undertaken to find out whether the balance of evidence was in favour of Warden & Flynn or Gundlach & Macoubrey, whether colours of perceived objects do influence their sizes. The method chosen was as follows: From red, green, blue, yellow, black

* Read before the Section of Psychology, Indian Science Congress (Lahore), 1930.

and white cardboards, pieces were cut out bearing the shapes of squares, circles and equilateral triangles. Five different sizes of each geometrical figure of each colour were selected for the purpose of the experiment: 4.5 cm., 4.8 cm., 5 cm., 5.2 cm., and 5.5 cm. were the lengths of the sides of the five squares as also of the five triangles and the diameters of the five circles of each colour. By the method of paired comparison every one of the squares of one colour was compared with the squares of the same size of all the other colours. Similar methods were followed in the cases of circles and triangles.

Out of nine students who acted as the subjects in the experiment, six were students of the Department of Psychology, Calcutta University, one was a student of a private college and two were school students. Their ages varied from 12 years to 30 years.

The stimuli were exposed on a neutral gray cardboard and their apparent sizes were judged by the method of paired comparison. The instruction to the subject was that he should see the two coloured cartons on the gray cardboard and should speak out, as quickly as possible, whether the pair seemed to him equal or not; and in the case of inequality, to point out the carton which appeared to him larger. He should not exercise his critical judgments.

There were six cartons of one size of different colours. The number of permutations that can be formed of six cardboards of one size of one figure taken two at a time is 30,

$$\therefore {}^nP_r = {}^nP_2 = 6 \times 5 = 30 \text{ (where } n=6 \text{ and } r=2).$$

There being five different sizes of one figure, the number of permutations that can be formed is 150. Thus three different figures (*e.g.*, squares, circles and triangles) of five different sizes were presented to the subject in 450 pairs. There being nine subjects, the total number of experiments was $450 \times 9 = 4,050$. The usual precautions relating to psychological experiments were taken.

The percentage of equality and inequality judgments is shown in the following tables.

TABLE I

Percentage of judgments in term of the first named colour for individual figures

	Square			Circle			Triangle		
	>	=	<	>	=	<	>	=	<
Red-Green	34.44	27.78	37.78	33.33	28.89	37.78	14.44	24.44	62.22
Red-Blue	36.67	28.89	34.44	32.22	33.33	34.44	20.00	37.78	42.22
Red-Yellow	46.67	21.11	32.22	52.22	18.56	32.22	37.78	36.67	25.56
Red-Black	44.44	24.44	31.11	43.33	35.56	21.11	27.78	36.67	35.56
Red-White	64.44	17.78	17.78	55.56	25.56	19.00	38.89	38.89	22.22
Green-Blue	35.56	30.00	34.44	38.89	32.22	28.89	42.22	28.89	28.89
Green-Yellow	35.56	31.11	33.33	41.11	35.56	23.33	54.44	25.56	20.00
Green-Black	38.89	31.11	30.00	45.56	25.56	28.89	52.22	30.00	17.78
Green-White	55.56	24.44	20.00	58.89	23.33	17.78	64.44	14.44	21.11
Blue-Yellow	52.22	21.11	26.67	48.89	27.78	23.33	52.22	25.56	22.22
Blue-Black	33.33	27.78	38.89	34.44	40.00	25.56	38.89	33.33	27.78
Blue-White	61.11	22.22	16.67	53.33	23.33	23.33	50.00	27.78	22.22
Yellow-Black	36.67	23.33	40.00	28.89	32.22	38.89	28.89	31.11	40.00
Yellow-White	47.78	24.44	27.78	35.56	33.33	31.11	22.22	34.44	43.33
Black-White	50.00	23.33	26.67	40.00	28.89	31.11	41.11	32.22	26.67

TABLE II

Percentage of judgment in term of the first named one when all the figures are taken into account—deduced from Table I

	>	=	<
Red-Green	27.41	27.04	45.93
Red-Blue	29.63	33.33	37.04
Red-Yellow	45.26	24.34	30.00
Red-Black	38.52	35.56	29.26
Red-White	52.66	17.41	19.63
Green-Blue	38.89	30.37	30.47
Green-Yellow	13.70	30.71	45.56
Green-Black	45.56	28.89	25.56
Green-White	50.63	20.74	19.63
Blue-Yellow	51.11	24.81	24.07
Blue-Black	35.56	33.70	30.74
Blue-White	54.81	24.44	20.74
Yellow-Black	31.18	28.88	39.63
Yellow-White	35.19	30.74	34.07
Black-White	43.70	28.15	28.15

An inspection of the above tables would at once show that though the cardboards were of equal sizes yet the coloured ones—red, green, blue and

yellow—were frequently judged to be greater than the black and white ones. When we compare the relative influence of different colours on the estimation of areas we find (Tables I and II) that the green-coloured cardboard was most frequently judged to be greater. From our own experiments, therefore, we are inclined to accept the findings of Gundlach and Macoubrey rather than those of Warden and Flynn.

There must be reason for this influence of colours on perception of size, but whether the influence can be explained in terms of 'luminosity' or whether other physiological or psychological factors are to be assumed we are not as yet in a position to suggest.

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Kretschmer's Theory and Behaviorism

RAM MURTI LOOMBA

It is just a quarter of a century now since Watson announced his peculiar standpoint in psychology which held behavior to be determined by purely physical factors. Behaviorism, as this standpoint was christened, maintained that it is not necessary to take account of consciousness at all in explaining human behavior. Even when psychology was defined as "the science which studies behavior and consciousness," and it was recognised that consciousness has to be studied, of course, like any other biological event, it was yet insisted that consciousness has nothing to do with determining behavior and is in no way a cause of the reactions of the individual.

But while psychological research has been tremendously influenced by the stimulus-response method and terminology of behaviorism, behaviorists as a school of psychology have sobered down and taken to a line of compromise and moderation. We find one of the latest examples of this in the adoption by Thouless of a kind of behaviorism which postulates psychophysical dispositions that cannot be directly observed in order to account for the complex patterns of behavior. Ekangren, likewise, arrives at a behavioristic viewpoint in psychology, but with the provision that language and the inner data of consciousness are also to be taken into account.

The conception of a mainly physical determination of individual behavior has, however, been again brought into prominence by Kretschmer's theory of constitutional types.¹ It claims that the psychological personality of a man is directly determined by his native physical constitution. It seeks to establish a correlation between different types of native physical constitution and different kinds of personality characteristics.

Kretschmer, starting with the ambitious idea of making investigation into the build of the body as a whole an exact branch of medical science, observed that human beings tend in respect of their body form to fall into three ever-recurring principal types, namely, (i) the *leptosomic*, with a smaller body thickness in proportion to height, narrow shoulders, a long, narrow, flat chest, a thin stomach, an elongated face and

a tall and slender appearance: (ii) the *pyknic*, with a larger body volume in proportion to height, a short and thick set, a heavy trunk and short and thick limbs; and (iii) the *athletic*, with strongly developed skin, bones and muscles, broad shoulders, a superb chest, a firm stomach, long limbs and a trunk tapering in its lower reign. In addition to these he found various small groups which he classed together as the *dysplastic*, presenting digressions of structure from the average. Now Kretschmer's work with psychotics, carried out on the basis of Kraepelin's classification of them into two groups of circulars and schizophrenes, led him to the observation that schizophrenes tend to fall into the leptosome, athletic and dysplastic groups, while the circulars tend to fall into the pyknic group. Accordingly he put forward the theory that there is a biological affinity between the psychic disposition of the manic-depressives and the pyknic body type, as well as between the psychic disposition of the schizophrenes and the body types of asthenics, athletics and certain dysplastics. This theory he later extended to cover borderline and normal cases as well, thus maintaining that the borderline leptosome is schizoid and the normal leptosome schizothyme, while the borderline pyknic is cycloid and the normal pyknic cyclothyme.

Much weight is given to the support this theory derives from work done by many investigators reporting a high incidence of differential personality reactions with the different types of body build. Thus Sili, Klott and Meyer (1921), Beringer and Duser (1921), Bleuler (1921), Rudin and Kahn (1921), van der Horst (1924), Munz (1924), Kilber (1925), Wertheimer and Hesketh (1925, 1927), Krasusky (1927), Scholl (1927), Enke (1927, 1928, 1932, 1933), Kroh (1929, 1932), Langer (1931), Meerowitsch and Fricke (1935), Schlesinger (1936), Ikami (1936), Burchard (1936), Husband (1938), and a number of others have all arrived at results which tend to confirm the theory. In the several bodily types they have observed differences in the sensori-motor and perceptual reactions, in emotional dispositions, in artistic tendencies, in perseverative ability, in intelligence, in cleavage capacity, and the like. The theory has been criticised on logical grounds by Mollenhoff (1924), Kluver (1925, 1931), Kolle (1926-27), Huth (1933), Heun (1935) and Wells (1938). There is also work done by Mohr and Grundlach (1927, 1929), Garrett and Kellog (1928), Campbell (1932), Garvey (1933), Wigert (1933), Klein, Asch and Block (1934), Williams (1935), Stevenson, Sung, Pai and Lyman (1937), Wells (1938) and Cabot (1938), which fails to substantiate Kretschmer's theory. A number of these workers, however, though not agreeing with Kretschmer, would suggest a different classification, while still holding to the principle of biotypology.

Apart from the fact that even the critics agree in crediting the theory with some amount of practical value, the recent advances in our knowledge of the interrelations of types of disease with bodily patterns, of the phenomena of heredity and of the functions of the nervous system and of the glands of internal secretion have raised considerably the importance of Kretschmer's principle. And we already find attempts being made to utilise it in the service of the problems of applied psychology. Thus it is being accepted and applied by many psychiatrists in clinical diagnosis. Fessard has reported an experiment in applying biotypology to the vocational guidance and orientation of children going out from a group of Paris communal schools. Ciafardo has applied the new biotypological methods to legal procedure by working out the relation between penal responsibility and individual constitution. Ionasiu, likewise, has studied the relation between the Pignet index of criminals in comparison with that of normal and insane people. Jaensch has carried out a study of the relation between constitution and accidents, which bears on one of the most important problems of industrial psychology.

In view of this growing importance of biotypology, it is here proposed to analyse the position of Kretschmer's theory with a view to understanding its implications with regard to behaviorism, that is to say, with reference to the question whether Kretschmer's theory tends to revive or support behaviorism.

Some points of contact between behaviorism and Kretschmer's theory can be easily observed. Both agree, firstly, in asserting the determination of psychological behavior by physical antecedents. It also follows that for both the ultimate determining factors in psychology must be physical. Another point of contact relates to the concept of consciousness. Behaviorism, so far as it does not enter into compromise and thus virtually not negate itself, rules out consciousness and claims to get along without it.² At most, consciousness is retained as an epiphenomenon. Now Kretschmer's theory carries with it similar implications. For movements, which constitute behavior, are motor functions of the physical body; and between physique and psychosis Kretschmer denies any direct clinical relation. It is the inherited constitutional germ that determines separately each of both physique and personality, both bodily function and mental function;³ and there is, therefore, no scope for determination of bodily function by consciousness.

But we must also notice that there is a fundamental difference between them. According to behaviorism, the physical determinant of behavior is the stimulus, which must in the end depend on the external environ-

ment. On the other hand, it is the type of constitution of the body that is, according to Kretschmer's theory, responsible for the personality and for the behavior of the individual.

Now the behaviorist claims to be concerned with "those bodily movements of the organism which establish its social status."⁴ Expressed thus, it seems to resemble very much the chief concern of Kretschmer, namely, the constitutional personality reactions of the individual placed as he is in the world. But a fundamental difference, and indeed opposition between them, comes to light when we notice that the reacting organism itself is conceived by behaviorism as essentially controlled by the physical milieu. In Kretschmer's theory, on the contrary, the organism is regarded as shaped, and its activity determined, by heredity. It is a manifested expression of an inherited constitutional germ. Exogenous agents are only secondary factors in relation to the ruling factor of the constitution and have only an accessory influence over the nature of the body.⁵ Behaviorism follows the linkage of behavior events in the organism on a physiological level,⁶ while Kretschmer's theory does it on a level which is fundamentally biological and genealogical.⁷

It consequently follows that there is a striking difference between the emphasis laid by behaviorism and by Kretschmer's theory in the conception of reaction of the organism to the external world. Behaviorism asserts a basal relation between stimulus and response. Movement is explained as ultimately determined by the function of the receptors; and the receptor organs are held to be conditioned by the energies of the stimulus. It, therefore, follows that for the behaviorist the stimulus or the environment is primary, while the organism is more or less secondary to the physical systems that lie without it. This is further borne out by the actual direction along which behaviorism has developed in practice since its inception.⁸ In Watson's words, "the situation we are in, dominates us always."⁹ In Kretschmer's theory, on the other hand, the emphasis lies in quite the reverse direction; it is the organism and its constitutional germ that is central and the environment or the external stimulus is the secondary and incidental factor.

This implies a further difference. Behaviorism assumes a one-to-one relation between behavior and its physical determinant. Each movement has its own specific stimulus-antecedent. Without this one-to-one parallelism behaviorism is bound to fall to the ground or else become its own opposite. But in Kretschmer's theory the real determiner of behavior is not a specific stimulus but always the unitary inherited constitution as manifested in the physique of the organism as a whole. In the

study of the form of the body, Kretschmer is concerned not with its unities but with its types.¹⁰ The behaviorist sequence "stimulus-movement" rests upon the conception of the reflex arc as the representative functional unit.¹¹ The Kretschmerian sequence "constitution-reaction," if we may so put it by analogy, rests, on the other hand, upon the conception of type or pattern of the body as a whole.

The behaviorist emphasis on the importance of the stimulus also implies a treatment of the individual as passive until aroused to action by some activating external condition. The same stimulus, according to it, must always produce mechanically the same response, irrespective of the individual. It stands thus in a marked contrast with Kretschmer's theory where the individual has a specific nature of his own which determines the nature of his reactions. In behaviorism, as a matter of fact, the individual personality is defined as the sum of reactions;¹² and there is no question thus of its determining the nature of those reactions. The organism is dominated over always by the situation which is ever releasing one or the other of the all-powerful stimulus-response sequences.¹³ Behaviorism has, likewise, no adequate way of explaining why we react to some stimuli and not to others, or in other words, what makes a stimulus a stimulus. It is evidently easy, however, to explain this on the basis of Kretschmer's typological theory with its strong emphasis on individual tendencies and dispositions as determinants of behavior.

There is an important difference, even on the problem of consciousness, in spite of the point of contact mentioned above in this connection. Watson and most behaviorists after him have insisted on forcing behaviorism into the phenomena of consciousness, instead of keeping it to whatever is given in behavior by behavioric methods and ignoring consciousness phenomena which logically fall outside the behavioristic sequence of events. Kretschmer, on the other hand, does not try at all to interpret consciousness in a manner that might place it within the behaviour sequence. The sequence of events in behavior proceeds from the inherited constitution through the bodily physique to reaction. Consciousness or the mental personality falls nowhere in the sequence, but independently of it is determined by the inherited constitutional germ.

Our analysis of Kretschmer's theory, then, reveals a fundamental opposition to behaviorism on several important issues. The nature of the physical determinant of behavior, the nature of the organism, the relative importance of the organism and the stimulus or environment, the character of the sequence of events in behavior and its bodily basis, the rôle of the individual in behavior, the effectiveness of the stimulus, and the status

of consciousness are all conceived in Kretschmer's theory in a manner quite the contrary of that adopted by behaviorism. It follows from this that the increasing attraction which Kretschmer's theory is exercising has an immense significance for behaviorism and its future. For, if Kretschmer's principle is finally substantiated and accepted, behaviorism cannot be sustained and must naturally fall to the ground.

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Religious Experiences of Muhammad

M. ASLAM

I

Psychological studies of religion generally draw on the experiences of mystics or those lesser religious personalities who are best described as followers rather than formulators or founders of religious traditions. Some accredited investigators have drawn on the religious experiences of university undergraduates and built upon them their analysis of religious life. Accordingly, many studies of religious experience, as it occurs in ordinary adults and in the lesser religious personalities and groups, exist. But there are nearly no studies pertaining to the experiences of the greater religious personalities, and yet it is the greater religious personalities, whose experiences and whose reactions to those experiences may be the most typical and to whom largely we may look for the most relevant material for a study of religious life and experience. The experiences of followers are coloured by the traditions which they inherit. They may be quite instructive as illustrative material, but they cannot provide the basis which the experiences of founders and formulators can for an ultimate theory of religion.

Rajnarain has recently attempted an interesting study of the Prophet of Islam. But this study approaches the Prophet as a mystic in the conventional sense of the term, and proceeds to describe in terms of the conventional "stages" the experiences of the Prophet. Naturally, only those experiences are selected which suit the conventional scheme, and many experiences, distinctive of the Prophet's personality, are left out. To serve as data for the psychology of religion, it is necessary that facts about the great religious personalities should be approached from a broader point of view, so that we may ultimately hope to have full-length personality studies of the great founders of religious traditions. These studies can then be collated and compared and a comprehensive view obtained of religion as it has been through the ages. As a step towards such a full-length study,

I have here tried to derive, from the original sources, an account of the religious experiences of the Prophet of Islam. I have tried to present the account with a minimum of comment, in order that the factual side of the matter may receive the attention it deserves.

II

On a general view of his life, the Prophet of Islam seems to have had a very large variety of experiences. If the sense of the term "experience" is extended so as to include in it not only the more queer moments in which the Prophet supposed himself to have been the recipient of communication from God, but also those moments in which he showed a high-level consciousness and conviction of God, moments of insight, judgement, tact and daring, then we should have to treat the whole of his life as one continuous experience. I hope such a comprehensive study will some day be made. For the time being, we may choose and apply a restricted sense of the term experience, and present at least a slice out of that full-length study of the Prophet's personality which may ultimately be made.

Of experiences even in a restricted sense, there is a large variety. A classification of these, however, is given in the Quran (xlii. 51):

And it is not for any mortal that God should speak to him except it be by inspiration or from behind a veil, or (that) He send a messenger to reveal what He will by His leave. Lo! He is Exalted, Wise.

This classification lays down three types of experiences: (1) Inspiration, the Arabic word for it being *wahy* which means a hasty suggestion. It is, I think, what has often been called intuition. Now intuition is commonly recognised as a manner or method of arriving at a conclusion apparently without any deductive reasoning. Intuition in this sense is common. In grave matters, when the Prophet found himself intuitively guided, he generally attributed this guidance to God. Apparently he was also able to distinguish such moments of inspiration from other moments in which he used his own judgement. Such intuitive communications, according to reports, he continued to have throughout his life. Instances during pre-prophetic years, in which he refused invitation to join polytheistic rites—against which he was destined later to preach so much—are instances of such intuitive guidance. (2) The second class of experiences is those *from behind a veil*. By these, I think, are meant dreams. In the Quran reli-

gious dreams, *i.e.*, dreams which are of the nature of communications from God—news, warnings, or instructions—are distinguished from dreams which are only a reflection of the dreamer's personality. The former are called *roya*, the latter *hadith-ul-nafs*. I am not sure whether the Prophet is reported ever to have had dreams of the second kind. But it is certain that, according to reports, his dreams were mostly, if not wholly, of the nature of communications from God. In the Hadith examples of dreams had by the Prophet are recorded. A notable example is the dream in which he saw that he had set out to visit the Kaaba to perform the Haj. This was during the very last days of his stay at Medina. The Prophet decided to fulfil the dream and set out with a large body of believers. The Quraish, however, stopped the visitors, when they were nearing Mecca. As a result of the peace signed between the Quraish and the Prophet—the Peace of Hudaibiyah—the Prophet had to withdraw back to Medina without performing the Haj. He explained to the somewhat disconcerted followers that he had been wrong about the year in which the Haj had been promised in the dream: God willing, the Haj would be performed the following year and the dream fulfilled. In the Quran and the Hadith, true dreams—the *roya*—had by other Prophets and other persons are also mentioned. The dream of Joseph, for instance, is described at great length in the Quran. The Prophet's companions also had true dreams. The Muslim *Azan*—call to Prayer—is reported to have originated in a companion's dream which the Prophet treated as a divine suggestion. Dreams of this kind are had during sleep, as well as during semi-waking states. What is called the *Miraj* (or the ascension) was a dream in a semi-waking state. The Prophet once said, "When my eye is asleep, my mind is awake." (3) The third class of experiences is typical of the Prophet, and according to the Quran and the Hadith, typical of all Prophets, by which term, of course, are meant the greater religious personalities. This class of experiences is marked by the appearance of Gabriel—which is the equivalent of the Holy Ghost—and by determinate verbal communications. Quran is a collection of such communications. It is understood, however, that the Prophet had verbal revelational experiences not included in the Quran. The Arabic Quran, however, provides a large untampered objective record of the Prophet's experiences which critical students may study and interpret as they like, and as often as they like. It is to the devotee a record of divine communications, of divine promises and prophecies; to the historian and biographer, a record of events; and to the psychologist a record of the experiences, of a typical religious personality. The Quran is explicit on this class of experiences which constitutes the very acme of religious experience.

Says the Quran :—

Lo! We inspire thee as we inspired Noah and the Prophets after him, as we inspired Abraham and Ishmael and Isaac and Jacob and the tribes, and Jesus and Job and Jonah and Aaron and Solomon, and as we imparted unto David the P'salms.

And messengers we have mentioned unto thee before and messengers we have not mentioned unto thee; and God spake directly unto Moses.

(iv. 163-4)

The other Prophets mentioned were inspired, but to Moses, says the Quran, God spoke like speaking. Incidentally Prophets not mentioned in the Quran are hinted at. In another passage we have a reference to this distinction of Moses with whom, by the way, the Prophet of Islam is compared, in the Quran, again and again :

And they measure not the power of God in its true measure when they say : God hath naught revealed unto a human being. Say (apparently to the Jews who said this) : Who revealed the Book which Moses brought, a light and guidance for mankind, which you have put on parchments, which ye show but hide much, and by which ye were taught that which ye knew not yourselves nor your fathers? Say : God. Then leave them to their idle arguments.

Revelational experience, both verbal and otherwise, is here asserted.

Verbal revelation was generally borne by Gabriel who appeared generally, so the reports say, in the garb of man (nearly always in the garb of the handsome Duhya Kaibi who embraced Islam at the time of Badr, but at least once in the garb of another person), but sometimes (at least on two occasions) directly and without human garb. But it might also have been received without Gabriel, through the involuntary utterance of words in a dream or in a semi-waking state by the recipient of verbal revelation. The Prophet describes the experiences accompanying the reception of verbal revelation, the experience of hearing as it were the direct voice of God. Asked, "how doth the revelation come unto thee," he said : "Sometimes it cometh unto me like the ringing of a bell and that is most hard on me ; then it leaveth me, and indeed I retain in my memory what it said. And sometimes the angel assumeth the likeness of a man for me and speaketh unto me, and I retain in my memory what he saith." The ringing of the bell certainly had the effect of taking the Prophet out of his immediate environment and making him attend to the sound. Attention set up, the

ringing seemed gradually to turn into speech. Why was this form of revelation the hardest? Apparently because it was, or seemed, so very direct; it seemed as it were to bring God face to face with man, His nearness and directness inspiring awe and fear in the recipient. The symptoms observed from the outside, by others, are also recorded in the Hadith. Says Aishah, the Prophet's wife: "And, verily I saw him whilst the revelation descended upon him on a day severe with cold, then it left him—and, behold, his brow was streaming with sweat." Says Omar: "When revelation descended upon the Prophet, we heard near about him a sound like the humming of a bee." Says Ubadah B. Somat: "When revelation descended upon the Prophet, it made him restless, and his face changed in colour." Says Sahl B. Saad: "I heard Zaid B. Thabit say, 'When revelation descended upon the Prophet, he grew very heavy because of it, and sweat dropped from his forehead, like pearls, even in winter.'" The heaviness experienced during revelation seems a symptom of utter relaxation which accompanied the moments of revelation.

III

As for the chronology of these experiences, I feel justified in asserting that they began in his youth and continued to grow not only in their frequency but also in their directness. There is no decaying of powers, so far at least as these experiences are concerned. In fact, if anything, there is evidence of growing power with age. The earlier chapters (suras) of the Quran are relatively short, the latter relatively long. (The quantitative ratio between the Meccan and the Medinite revelation is roughly that of 5:3. But when it is remembered that the Meccan period was thirteen years and the Medinite only ten, the quantitative ratio between the two periods, the earlier and the later, turns out to be 5:4, *i.e.*, about equal. Add to this the fact that at Medina the Prophet had assumed many new functions and the fact that all the longest chapters belong to the Medinite and the shortest to the Meccan period, and it would be evident that during the later period of his life, the Prophet had increased rather than decreased in the vigour of his Prophetic activity.)

From the records it is not possible to present in strict chronological order all the experiences of the Prophet, except in broad outline. The Quran, the main record of his verbal revelations, does not present the revelations in their chronological order. From the very beginning the Prophet had prescribed another order for recording the Quranic revelations as they were received. This was the order which the Quran was to have as a reading book for all time, and that is the order in which the devotees

read it to this day. But the chronological order of the chapters, and even of the separate verses, is known, and may be used for interpreting knotty points of the text. Some European editors have tried to cast the Quranic revelations in their chronological order (e.g., Rodwell in his famous edition of the Quran and Hughes in the article on the Quran in his *Dictionary of Islam*); others have presented lists of the chapters in their chronological order. Between these attempts there seems to be little or no disagreement. In works on exegesis Muslim authorities argue the meaning of given portions of the Quranic text from their chronological position. But the Quran apart, we know from the Hadith, in broad outline, how the various types of religious experiences emerged in the course of the Prophet's life. It is certain, for instance, that accounts which give the impression that one day the Prophet suddenly encountered the angel Gabriel who presented him with the first revelation must be set down as false. The encounter might have been an important stage in the experiences of the Prophet but was not entirely the first experience nor even the first verbal experience.

Tradition, not altogether unreliable, however, tells of a strange experience which befell Muhammad when he was a child of four living with his wet-nurse, Halima, out in the country. It is that when he and his foster-brother, Abdullah B. Harith, were playing, and no older friend or relative was nearby, when two figures dressed in white came and made the child Muhammad lie down. They then cut asunder his breast and took something out of it and threw it away. The other boy then ran up to his mother and, on his report, the nurse Halima made for the scene. Of course no blood or any such thing was there: only, the boy Muhammad stood trembling in fear. He related what had happened, saying that the figures searched for something in his breast and, having found it, had thrown it away.

Unless we dismiss the whole story as a pious construction, which authorities on Muslim records do not feel disposed to do, we are bound to regard it as a kind of day-dream shared by the two boys. But it is impossible to regard it as an epileptic fit. That suggestion, made at one time by some European biographers of the Prophet, is now discounted on all hands. Nor is it easy to build a pathological theory of the Prophet's life and career on an isolated incident of this kind. But this is a large subject, and I must pass on to my factual account of the Prophet's experiences. It is certain, as I have said, that dreams and intuitions the Prophet must have been having for a long time. These aided by due reflection and speculation were shaping his outlook on life and the world. Accordingly the idols and the rituals connected with them had, even before the announcement of his

ministry, begun to disgust him. On one occasion, when moved by his good uncle, Abu Talib, to participate in a feast in honour of the Quraishite pantheon, the young Muhammad went into utter despair. He hesitated for a time, then retired to his aunts and reported that if he ever tried to go near an idol, he would be prevented by a figure in white and asked to hold back. It is related that he never afterwards participated in Quraish rites. On one occasion he and his cousins were standing near an idol. His eyes rested for a while on the walls of the Kaaba and he then retired from the place. Asked what had happened, he said that he had been commanded to retire.

According to Aishah the first kind of revelation to which the Prophet was initiated was the true dream during sleep. As she puts it, he never saw a dream but came true like the dawn of the morn. In the simile of the dawn there is the suggestion that the meaning of the Prophet's dream, though apparent in outline, had to unfold itself in detail. The unfolding, however, in these early dreams, did not take long. It followed as midday follows the dawn of the morn. According to Tabari, the Prophet had been having experiences of this kind for as many as twenty years, before that dramatic experience took place in the cave Hira which marks the beginning of the Quranic revelation. At the time of this experience, the Prophet had become a solitary individual devoted to the contemplation and remembrance of God. The Prophet's conception of God, which later became so explicit in the Quranic revelations, was already present in germ in his mind. According to Aishah, solitude at this stage became dear to the Prophet and he withdrew into the cave Hira (about three miles north-east of Mecca). This period of solitary contemplation must have lasted some months, and absorbed the whole of the Prophet's being. It must have been interrupted only by short visits to home for taking provisions. During the solitude he applied himself to ardent devotions until the great moment came. The angel came to him in the cave and said, "Recite," to which the Prophet is reported to have said, "I am not of those who recite." The reaction as described in the records is that of a bewildered person not altogether unaware of the possible meaning of what was happening. On the Prophet's apology, as it were, the figure took the Prophet and pressed him until all strength went out of him. Thereupon he released him and repeated, "Recite," to which the Prophet again replied, "I am not of those who recite." The Prophet, happy in his solitude and remembrance of God, now feared that his experiences were turning into something else, in fact, into leadership which he was afraid to undertake. The figure, however, took and pressed the Prophet a third time and said, "Recite in the name

of thy Lord who hath created—created man from a clot! Recite! 'And thy Lord is the Most Bountiful' " and the rest of Chapter XCVI of the Quran. The incident is reminiscent of Jacob's encounter with the angel described in Genesis, Chapter 32. It was now certain that the Prophet's experiences were taking on a new turn. He repaired to his wife Khadijah, his heart trembling. "Wrap me up, wrap me up," he said, and they wrapped him up. When composed, he told his wife what had happened. "Verily, I fear for myself," he explained. Apparently he was understood by his wife who, we must suppose, must have been sharing the earlier experiences of the Prophet. For she said, "Nay, by God! Never will God humiliate thee! Behold, thou fulfillest the duties of kinship and supportest the weak, and bringest benefit to the destitute, and art bounteous toward a guest, and helpest those in genuine distress." The Prophet's experience seems composed of the fear that the call was greater than his capacity and different from what he thought he would continue to enjoy, *viz.*, contemplation and remembrance in solitude. Khadijah suggested they should go to the aged and blind Waraqa, a Christian cousin of Khadijah's, learned in the scriptures. So the two went to him and Waraqa, having been informed of the purpose of the interview, said, "That was the angel of revelation whom God sent down upon Moses. Would that I were young and could live to see when thy people drive thee away!" "Why?" said the Prophet. "Will they drive *me* away?" The Prophet was so certain of the goodwill of his people towards him—his own goodwill towards them seemed to guarantee their goodwill towards him—that he could not believe that his people would ever drive him away. But Waraqa explained, "Never came a man with the like (of one) thou hast come with, but was persecuted. And if thy day witnesseth me, I shall help thee with a powerful help."

Thereafter the apparently daily revelations broke off and the break lasted for as long as three years. This disturbed the Prophet very much. Had he been unwilling to take up the call? Had he been tried and found wanting? Had he displeased his God? Had it all been a chimera? It was difficult to believe any of these things. But at last the break was over. "Once whilst I walked, I heard a voice from heaven and I lifted my eyes—and there was the angel who had come unto me at Hira, sitting on a throne between heaven and earth. And he inspired me with awe, and I returned home and said, 'Wrap me up! Wrap me up!' Then God, the Most High, sent down (the Revelation): '() thou wrapped in a cloak! Arise and warn!' to the words: '..... and pollution shun!' " (lxxiv. 1-5).

From now onwards there were no breaks in the revelations which continued to be received, according to one estimate, at the average rate of about

10 words or more a day. The breaks now did not last longer than a few days, and even these were made up by longer revelations on other days. The distress and discomfort experienced during the very earliest revelations also wore off. "Have we not caused thy bosom to dilate? And eased thee of the burden, which weighed down thy back?" we find in a later revelation (xciv. 1-3). The earlier discomfort was caused by the anxiety to take in the revelations and to be able to remember them exactly. Experience and reassurance contained in the revelations themselves, however, seem to have made it all easier and easier.

IV

I can make only the briefest possible reference to the reactions which these experiences evoked in the Prophet's contemporaries. He was, of course, accepted by an increasing number of followers, by those who evinced unsparing love and loyalty for him, and who showed understanding by their sufferings and sacrifices by the intelligent conduct of the affairs of Islam which later fell to their lot. But by others he was not only denied but derided, persecuted and tortured. Both these attitudes are significant. They show that believers and detractors both took the Prophet very seriously, not merely as an ordinary mad man would be taken by ordinary people. He was described as a Prophet, an exemplar of wisdom and morals, as the best of men and so on by believers, and as a pretender, a kind of occult scientist, a soothsayer and a mere poet by his deniers.

Human Temperaments

W. BURRIDGE

As what may seem at first sight to be a strange preliminary to a psychological question I give here at the outset an example of a mathematical problem set at a public examination in India, *viz.*,

$$\cot \frac{A}{2} + \cot \frac{B}{2} + \cot \frac{C}{2} = \cot \frac{A}{2} \cdot \cot \frac{B}{2} \cdot \cot \frac{C}{2}$$

You are not asked to solve this problem, only to look at it. Having done that, next consider what would have happened if the answer given on the right were wrong. Obviously, every candidate who was working correctly would have had to give up in despair the task of demonstrating the relationships between two sides of this identity.

Having realised that, you may next consider the relationship between Physiology and Psychology. The evidence is overwhelming that psychological phenomena have some form of connection with the activities of the nerve cells which make up our brains or organs of mind. Granting this, then it is reasonably certain that we ought to be able to demonstrate relationships between the two groups. If, for example, there is a reality principle, we ought to be able to find one physiological basis for that, and another for pleasure-pain. To demonstrate such relationships, however, requires that both the physiological and psychological pictures should be true.

Thus, associating psychological phenomena with the left hand side of the identity above, and physiological phenomena with the right, we ought to be able to track the one to the other, and *vice versa*. If, however, either side of the equation be wrong, such attempts can only be abandoned in despair.

The evidence is now accumulating that what may be called the physiological side of the identity has been wrong. The traditional physiology of the nerve cell has been based on the phenomena observed with the electrical excitation of the members of the frog's muscle-nerve preparation. The picture thus presented of a nerve cell showed it to be a structure which

remained inert and apparently lifeless until excited to action by an external agent termed the stimulus. A further belief concerning nerve-cells was that each of them contained one source of energy.

In contrast with this, the picture of a living nerve cell that I have been able to present reveals it as possessing two sources of energy, and as being always in a state of activity which is rhythmical in nature. The two sources of energy, it should be noted, provide physical bases for the reality and pleasure-pain principles, while perpetual rhythmical activity is exemplified in the activities of the respiratory centre.¹

Now, a nerve cell possessing two sources of energy and an inherent rhythmical activity possesses possibilities that do not come within the purview of the wildest dreams of those who have presupposed the possession of inherent quiescence and one source of energy. And when a cell of that type is placed on the right hand side of the identity above, one can make a connection between psychological and physiological phenomena. Such connections have now been made, and as a striking example, I will take one derived from wondering why we wonder why.

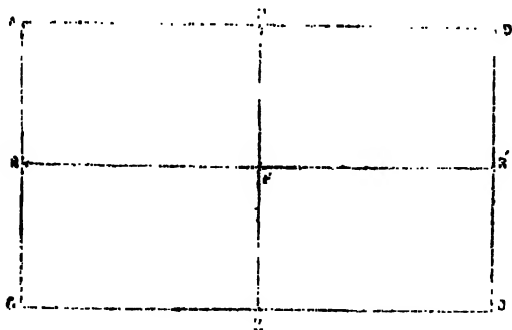
There is no doubt about the fact that the human mind has an urge to link together phenomena with each other and, in an attempt to associate that urge with the activities of nerve cells, I eventually drew the conclusion that "there exists an integrative tendency which determines that groups of neighbouring yet isolated neurones must seek a common rhythm and a resultant."¹ Several years later, Professor Adrian of Cambridge proved experimentally that this conclusion was true. For, he demonstrated by electrical methods that "groups of nerve cells tend to act in unison when there is nothing to prevent them. These co-ordinated waves of activity express the tendency of nerve cells to associate together."²

Nothing could be more striking than this experimental confirmation by Professor Adrian of the conclusion concerning nerve cell behaviour reached by considering psychological phenomena. His complete confirmation not only provides the acid test of the validity of the principles whence the deduction or prophecy was made, but also, it should be noted, the making of such predictions was never previously possible. Unfortunately, however, the significance of these is temporarily obscured through Professor Adrian getting annoyed at, rather than being scientifically interested in, the existence of a prediction of his discoveries. That, however, is by the way; the essential point to note is the validity of the connection that can now be made between psychological and physiological phenomena.

What we thereby are prepared to do now and in future is to set down some complex psychological phenomena on the left hand side of our

identity, as it were, and track them down, or reduce them to, some seemingly simpler physiological phenomena. The psychological phenomena with which we are prepared to deal now are the four chief human temperaments first described by Hippocrates. They are the sanguine, choleric, phlegmatic and melancholy. Galen subsequently described an ideal temperament composed of an equal balance between all four, but neither he nor his successors have had much use for it. Later we shall see what Galen was getting at, but for the present we can carry on with the four temperaments of Hippocrates.

These we have to place in a rhythmical family of nerve cells each one of which possesses two sources of energy. We start by considering the general physiology of rhythmical structures, and study it through the heart. This organ has a normal or average rate of beat from which two variations are possible, *viz.*, quickening and slowing. In addition, it will have an average or normal strength or beat from which again only two variations are possible, the stronger or the weaker.



This condition of affairs can be represented by drawing the two lines RR' , HH' inside the rectangle $AOBD$. These two lines can be regarded as axes of co-ordinates which are placed inside a rectangle, because we deal with structures which must have a limited capacity to be slowed or quickened, and limits of strength. The four sides of the rectangle indicate those limits. The line HH' represents average or normal strength and rate. Any point above the level of F , or the line RR' would be representative of something stronger than normal, and any point to the right or left of F , according to its distance from HH' , would be quicker and slower than normal. Hence everything in the rectangle $HFR'D$ is quicker and

stronger than normal, while everything in the rectangle ROH'F is slower and weaker than the normal or average.

The four small rectangles constituting the large rectangle AOBD may be taken to represent the four temperaments of Hippocrates and our next task is to place each in its proper sector.

That is done on energy considerations. Every nerve cell has two sources of energy, which I have designated by the letters H and L. The capacity of the neural machinery is designated by T, and its normal working is indicated by the formula

$$H + L = T,$$

where H is a source of energy giving judging capacity and L the data that are judged. It is deducible from this formula that, as the data increase, our capacity to judge or assess them automatically decreases. This, of course, accords with the facts. Hence, measuring data-intensity from the line OB, the two sectors above the line R R' would represent temperaments where judging capacity is less than the normal. The two temperaments in which judging is faulty are the choleric and sanguine. Accordingly they are represented by the sectors above the line R R'. To get them into position we noted the evidence elsewhere that pleasure is mediated by quickened rhythm and disliking by the slow. Hence we place the choleric temperament in the left upper quadrant and the sanguine in the right upper. After that, using the same type of argument, we place the melancholy temperament in the left lower and the phlegmatic in the right lower. The line H' L' would represent Galen's ideal temperament.

I would next point out that the majority of normals possess ideas belonging to all four temperaments. The temperament may therefore be the eventual balance of the neural processes mediating these ideas, or there may be some further factor at work. That is to say, the person of sanguine temperament may be a person in whom the majority of the nerve cell groupings mediating his ideas have activities of the sanguine type, or else there is some other factor.

There is, I believe, another factor and that is the nature of the nerve cell activities giving him his ideas of himself. Elsewhere I have suggested that each person has a special group of nerve cells in his brain telling him who he is.¹ This group I have called the ego-group.² Since it is mediated by nerve-cells the individual's ideas about himself are subject to influence by drugs, disease processes, and the normal influence of age, etc., because each of these agencies can modify the activities of nerve-cells. Hence eventually, I have to suggest, the individual's temperament indicates

the normal nature of the nerve-cell processes of his ego-group. Harmony of rhythm would determine that the man of sanguine ego-processes should only make contact with, or rather work with, the processes mediating ideas of similar type.

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LUCKNOW

A Case of Temporary Loss of Memory

K. P. CHATTOPADHYAY

In the following short note, I shall merely describe a case of loss of memory in ordinary civil life, under stress of emotion due to conflict. The particular emotion which led to this loss of memory was fear of failure. It concerned a young Indian of our acquaintance who had come to Cambridge in 1920-21 to study for the Indian Civil Service Examination. I shall call him Mr. A in this note to conceal his identity. Mr. A's circumstances were apparently not very good; and he was anxious to pass the examination. Physically, Mr. A was about five feet, seven inches in height, and somewhat fat. He was of fair intellectual attainments though somewhat slow, and lacking in a sense of humour. In consequence he received a generous share of chaffing from fellow-students which he sometimes resented unexpectedly. He got a second class in the Natural Science Tripos, Part I, and then appeared in the I.C.S. Examination. As the vacancies were few he was not very hopeful of success. At this time he wanted to learn cycling. As I was a near neighbour, he asked my help and of my friend Mr. D who had also appeared at the I.C.S. examination. We followed the usual procedure in trying to teach Mr. A to cycle. We would support the cycle, enable him to balance, move him on and then let go. But he at once became very nervous, and showed it by his wild steering, his facial expression and also cries for help, although we ran, one on each side of him. We tried also the dodge of balancing him and then pretending to be supporting him, when in reality, we had let go the cycle. But his clumsy steering at once made the cycle wobble and he realised that he was no longer supported. Generally he came down within a couple of seconds, although we never let him actually tumble to the ground. At the end of a week of heroic endeavour we had to advise Mr. A to drop it, as he made practically no progress.

Shortly afterwards the I.C.S. results came out and Mr. A was found to have missed getting in, by a few places. He was very much depressed; and although he took up his studies for the Part II, Natural Science Tripos,

we could see that it had been a very bad blow, and that he was suffering from great emotional tension. About this time, however, the Moplah rebellion and other political troubles in India had raised doubts in the mind of young Englishmen as to the wisdom of selecting a career in India. In consequence, several English boys who had passed the I.C.S. examination decided not to go out to India. There were several unexpected vacancies, on this account and these were filled up from candidates who had secured the places just below those at first recruited. Mr. A was one of the men appointed on this occasion.

Mr. A at once became cheerful and made no secret of his relief. Although he could have continued his scientific studies, he dropped them and contented himself with just loafing about, doing only the little bit of work required from I.C.S. probationers. At this time, however, he had to learn riding. He joined the riding school with other Indian Civil Servants on probation. I was then busy with my research work and I lost touch to some extent with Mr. A. But I heard that he was clumsy on horseback and was rated by the trainer.

One evening during this period, I was sitting in my room doing some work, when an acquaintance, Mr. P, who was also an I.C.S. on probation, came in leading Mr. A, coaxing and cajoling him to come in. Mr. P said that Mr. A had tumbled off his horse and *forgotten where he was*. On my enquiry Mr. P added that Mr. A had not actually fallen down from horseback, but got off his horse, somewhat hurt.

I asked Mr. A to sit down and noted that his lips were slightly cut and swollen; but there were no other marks of injury. At first I thought that Mr. P was merely pulling the legs of Mr. A, making fun of his clumsiness in riding and his well-known fear of falling down. I therefore asked Mr. A, not very seriously, whether he knew me or not. To my surprise, he looked as if he was trying to remember something with difficulty, and said with hesitation, "Yes, yes, you are Chatterji, are you not? Chatterji?" He repeated my name several times as if anxious to make sure that he was right. On asking him further questions I discovered that he did not recognise Mr. P although he had known the latter for over six months and had met him frequently in class rooms and the riding school for their probation work as Indian Civil Servants. I found also that he did not remember that

- (1) he had come to England for studying for the I.C.S. Examination,
- (2) he was in Cambridge, (3) he was in the Indian Civil Service.

But he at once recognised as his property, a book which he had lent to me.

It was the Sanskrit classic drama, *Shakuntala* of Kalidasa. Mr. A had brought it with him from India. The book was not directly connected with his studies for the I.C.S. Examination.

I was alarmed at these symptoms and took Mr. A to his rooms which were opposite mine and put him to bed. Here again he did not recognise his sitting room where he had worked for many months for the I.C.S. examination; but when I showed him a betel-nut cutter which had been a gift of his father-in-law's family, and which he had used often to cut betel-nuts to offer to us, he at once recognised it. When put in bed, he remained quiet, but after several hours he kept asking about the day of the week, and when told, repeating it in a very worried manner, showing a good deal of anxiety. He did not ask any other question that night.

The medical man who was fetched almost immediately, found no injuries except the cut on lips noted by me. He advised rest and quiet for a few days. On enquiry from other I.C.S. probationers who had gone to the riding school or met him during the day we collected the following facts:-- On that morning, quite early, while Mr. D was still in bed, Mr. A had gone to ask Mr. D about repayment of a loan: he had told Mr. D that he (Mr. A) was going to the riding class that afternoon.

At midday he had lunched with another I.C.S. probationer, Mr. S, and had spoken to him also about the riding class.

He had then come home, put on his riding breeches and gone to the riding school. There, the probationers were doing a small hurdle or fence that afternoon. Mr. A had looked very nervous and was observed crouching very low over his horse, holding tightly to the reins. As the horse took the jump, it threw up its head, hitting Mr. A lightly in the face. Mr. A at once stopped his horse and jumped off it. He did not fall down. As this interrupted the work, the trainer swore at him. But Mr. A did not say anything. He left the grounds and went to dressing room. Nothing abnormal was then noted in his behaviour. Mr. P, who came to the dressing room a few minutes later, however, realised that something was wrong with Mr. A. As Mr. P. thought, Mr. A might not be feeling well, he took him to the bus stop and escorted him home. On the way he discovered that Mr. A had lost his memory and being alarmed took him to my rooms, as I lived just in front of Mr. A's rooms.

Mr. G, another friend of mine, was staying in the room above that of Mr. A. He, like me, had decided not to go in for the I.C.S. examination. Mr. A recognised Mr. G when the latter came in, shortly after Mr. A had been taken by me to his own rooms.

Mr. A's memory came back gradually thus:—

Next morning he was able to recollect that he was in Cambridge and that he was an I.C.S. probationer. He also knew his friends Mr. D, Mr. P and others. He did not, however, recollect any incident of the previous day. Mr. D asked him about the visit in the early morning to remind him about repayment of the loan. Mr. S mentioned the lunch and the others his journey to the riding school and return. But he had no recollection of any of these incidents. By next morning, however, he was able to recollect the incidents of the day prior to his coming home to put on the riding breeches. So far we had not told him the exact incident in the riding class and merely informed him that he had injured himself while riding. He had taken it to mean that he had had a fall and been stunned. When, after a few days, he seemed to be all right, to judge from his behaviour and his replies to our questions, we told him the exact details of the incident. He was, however, unable to recall the jump of the horse or his getting off it. We suggested to him that his distressed emotional state when riding, and his fear of losing the I.C.S. job, if he failed to pass in riding, had been responsible for the loss of memory. Mr. A had read with us a few books on modern Psychology and was in a position to understand what we meant.

None of us were acquainted with his early life and it is not possible to say what earlier causes had laid the foundations of that extraordinary fear of falling down that he displayed. Apparently however, our suggestions and explanation had a beneficial effect, as he managed to pass the test in riding without further mishaps.

The interesting feature about this case was the selective loss of memory. Although Mr. A had known me and also Mr. G in England, at Cambridge, where he had met Mr. D, Mr. P and others, he failed to recognise Mr. P and Mr. D who were I.C.S. probationers like him; but he recognised myself and Mr. G both of whom had deliberately abstained from trying for the Indian Civil Service, although both of us had been asked to try for that service. Again, he recognised a book and a betelnut cutter which were not associated with his I.C.S. studies; but he failed to recognise his sitting room where he had worked for the I.C.S. examination. Clearly the I.C.S. studies and everything connected with the I.C.S. work were out of his mind; but associations formed at the same time and in the same place, with two persons who had dissociated themselves from I.C.S. work, were retained. So also were the memory of a book and an object with associations of an earlier period when he had not come to England for the I.C.S. work.

The return of memory was also interesting. He recollected within twenty four hours the fact of his having come to England, of being in Cambridge and an I.C.S. probationer. He knew also the other I.C.S. men on probation. But the incidents of the day on which he went to the riding school and lost his memory were not recollected until later. It would appear that he had been worrying the whole day about the coming ride and spoken to two of his I.C.S. probationer friends about it on that day. The great anxiety he felt with regard to the ride, when he would have to jump over a hurdle—a difficult task for a clumsy and nervous rider—must have made him wish that the particular day of the week were still distant. This probably is the explanation of the question by Mr. A regarding the day of the week and the anxiety showed on learning it. He had probably begun to recollect that he was an I.C.S. probationer but he did not still remember having gone on that day to the riding school.

Our experience in trying to teach Mr. A to cycle shows that the fear of falling down was very strong in his mind when riding the cycle. He was also very much worried by the fear of being unsuccessful in the I.C.S. examination. That the result of such failure was very unpleasant to him was clear from his behaviour on declaration of the results. Subsequently this unpleasant mental content was removed by his appointment. But any subsequent test for the I.C.S., however trifling compared to the competitive test, would tend to bring up again this unpleasant mental content. Except riding, the rest of the work had no fears for him. But, riding was different; he had had previous experience of trying to ride a cycle, and had failed miserably. Riding a horse was more difficult, and there were no friendly hands to help him. Trainers are notoriously rough; and unsympathetic in the case of clumsy riders; and, from what we learnt, in this case the trainer was of the usual type. But failure in riding meant failure to retain the I.C.S. job. It was also necessary for him to repress his fear when riding and keep fairly calm if he was to escape merciless chaffing. The hours in the riding school and their anticipation were, therefore, linked in Mr. A's mind with extremely unpleasant contents. The limit of his endurance was reached on the afternoon he was expected to jump a hurdle. The anxiety then ended in amnesia.

In ordinary healthy life many sensations are carried to our mind of which we are not aware. Reflex actions or habitual responses occur without our being conscious of them. But a new sensation, the response to which has not been organised into our habitual or reflex systems, makes us attend to it and we become aware of it. If the stimulus persists, and the reactions to it do not conflict with our existing systems of response, they

are organised into one or other of such systems. But if the reactions do not so fit in, there is what is known as a disagreeable feeling or pain according to the degree of intensity of the disturbance of existing systems of responses.

The simplest way to end the unpleasant situation is to break contact with the source of stimulus. This can be done by moving the organism away, *i.e.*, by flight ; or by removing the source of stimulus or destroying it, *i.e.*, by aggression. Both these modes of reaction are quite common, the first being the more primitive. A third reaction which is found in animals in danger has been termed by Rivers "manipulative activity." As he states, "From most of the dangers to which mankind is exposed in the complex conditions of our own society, the means of escape lies in complex activities of a manipulative kind." A fourth type of reaction to danger is immobility. It is less common ; but is found in animals and serves to conceal the animal from the source of danger.¹

The only other known mode of reaction to danger is one of collapse. In the case of Mr. A the problem was to learn to ride and thus avoid losing his job. Flight was out of question, as he would have run into the very danger he wanted to avoid, if he did not go to the riding school. Aggression was meaningless. Manipulative activity in the way of learning to ride was the best way out. But he knew of his clumsiness ; he remembered his failure in trying to ride on a cycle. His experience in the riding school also did not encourage him to anticipate success. The only other reactions possible were of the fourth and fifth types. In Mr. A's case concealment by immobility in its literal sense was not possible. But, as a child sometimes shuts its eyes and thinks no one can see it, adult human beings try to avoid danger by refusing to attend to the sensations linked with the source of danger. What Mr. A did was to inhibit attention to the stimuli which were causing the unpleasantness. This was not a sudden response. For some time back he had been partially ignoring the unpleasant contents regularly, though never to this extent. On this occasion, instead of merely keeping the unpleasant mental content out of the focus of attention he completely ignored its existence.

A very powerful inhibition which had lasting effects occurred at the time of the greatest emotional stress—when he was taking the jump over the hurdle. As soon as he came to this point, he ceased to make any response to the I.C.S. and riding proficiency stimuli, as I may term them. Hence there was no longer any point in his being on horseback. So he got off and came away—from what was then a strange place. The appearance of his I.C.S. friends could not evoke any response from him, nor could any

object or place closely associated with his I.C.S. work. But other persons, or objects, outside the range of such associations evoked the normal response. Of course, a powerful inhibition which prevents response to such a wide range of stimuli is bound to hamper ordinary responses, and this was probably the reason of Mr. A's altered behaviour in the evening of the incident, like a man who is somewhat dazed.

The retarded return of memory of incidents connected with the riding school and the other details like the question regarding the day of the week also fit in with this view. That the solution of the conflict adopted by Mr. A did not become permanent was obviously due to its inadequacy. Prolonged inhibition of responses to the I.C.S. and riding proficiency stimuli would have had the same result as that which he was trying to avoid. Probably the realisation of this danger, from what occurred and our analysis of his mental condition helped him to make up his mind to go back to the only satisfactory way out, *e.g.*, learning to ride.

¹ Instinct and the Unconscious : W. H. R. Rivers, Cambridge 1922.

A Reconstruction of the Hormic Theory of Sentiments.

P. S. NAIDU

Introduction

Professor McDougall's theory of instincts, the outstanding contribution of the hormic school to psychological theory, has passed through three stages in the course of its evolution from its very promising and clear beginnings in his *Social Psychology* to its rather doubtful ending in the *Energies of Men*. The central affective or emotional aspect of the instinctive structure of the mind, which occupies a very prominent place in the earliest formulation of the hormic theory, is slowly but steadily pushed to the background. Finally, in the Supplementary Chapter VIII, which was added to the twenty-third edition of the *Social Psychology* published in 1936, the emotional aspect is merged in the conative part and is made to lose its individuality completely. Should such a fate have overtaken the emotions? We contend, in this paper, that not only such a fate need not have overtaken the central part of the instinctive structure of the human mind, but that the three-fold scheme should be made the foundation for the analysis of the highly evolved and complex structure of the adult mind called 'sentiment' in hormic psychology. We shall also indicate how that which is most valuable in hormic psychology for æsthetics and sociology could be preserved from disintegration only by keeping intact the three-fold analysis of *Social Psychology*.

The Three Stages in the Evolution of the Hormic Theory of Instincts

(1) Professor McDougall's earliest description of the structure of the human mind as inferred from its functioning is clear and precise. ".....an instinct (is) an inherited or innate psycho-physical disposition which determines its possessor to perceive, and to pay attention to objects of a certain class, to experience an emotional excitement of a particular quality upon perceiving such an object, and to act in regard to it in a particular manner, or at least to experience an impulse to such action." ¹ In the detailed discussion that follows the definition of instincts, considerable emphasis is laid on

the central or emotional aspect of mental structure. This aspect is considered to be of greater value to the psychologist and the sociologist than the other aspects. In an illuminating foot-note on p. 26 of his *Social Psychology* Professor McDougall says, '...any definition of instinctive action that does not insist upon its psychical aspect is useless for practical purposes, and worse than useless because misleading. For, if we neglect the psychical aspect of instinctive processes, it is impossible to understand the part played by instincts in the development of the human mind and in the determination of the conduct of individuals and societies, and it is the fundamental and all-pervading character of their influence upon the social life of mankind which alone gives the consideration of instincts its great practical importance.'²

The importance of the emotional aspect in instinct is further stressed by the Professor when he points out that it is this central part alone that remains constant in the varied and complex development of mental structure, while the afferent and efferent parts are subjected to extensive conditioning processes.³

In the light of this convincing analysis Professor McDougall attacks, with notable success, several intricate sociological problems. The theory of sympathy, and the explanation of group behaviour based on the theory, are valuable deductions from this three-fold analysis. So, one would expect the further development of the theory of instincts to strengthen its foundations. But the learned professor has unfortunately undermined the foundations of the theory in his two outstanding works, *An Outline of Psychology* (1923) and *The Energies of Men* (1932).

(2) In '*An Outline*,' there is an emphatic and formal re-affirmation of the position taken up in the '*Social Psychology*,' and yet there is visible already a tendency to shift to another position which harbours the potentialities for developing into the contradictory of the first. Instinct, we are told, should be defined 'by the nature of the goal, the type of situation, that it seeks or tends to bring about, as well as the type of situation or object that brings it into activity.'⁴ We do not object to this new way of defining instinct. This definition has considerable validity as a principle for the objective identification of instincts. But what we object to is the manner in which the central affective aspect of instinct has been ignored completely. A little farther on in the treatise, Professor McDougall mentions the possibility of instinct and emotion being put forward as alternative principles of explanation of animal behaviour. Elsewhere he says, 'It is true that we become introspectively aware of the impulse, only when we do not give ourselves up to it, but arresting or suspending it, turn our attention from the

object to ourselves.....'⁵ This is a distinct climb-down from the level of *Social Psychology*.

(3) We notice a very drastic overhauling of the entire scheme of instincts in the *Energics*. Instead of the original three-fold analysis we are presented a two-fold one into cognitive abilities and conative propensities, the relation between the two being conceived in terms of a highly artificial mechanical analogy. In the preface to the book Professor McDougall admits that his peculiar usage of the term 'instinct' has involved him in endless controversy 'In this book,' he says, 'I have used the word in a stricter sense, and have preferred the good old word "propensity" to designate those factors of our constitution which I formerly called instincts.' It is not merely a change in terminology, but a very sweeping change in the conception of the nature of instincts that attracts our attention here. The Professor is also prepared to admit that there is 'just a grain of truth in the James-Lange theory.' This change is revolutionary, and the abandonment of the original position is complete when we read the confession 'I have become convinced that, in describing a typical instinctive disposition as consisting of three distinguishable parts, I was in error in one respect, namely, in drawing the line of separation between the second and third parts. As I now see, *there is no sufficient ground for regarding a conative part as distinguishable from the emotional or effective part.*'⁶

The Evolution of the Theory of Sentiments

Two reasons for the radical change in Professor McDougall's analysis of instincts have been suggested in an article recently published by the author of this paper.⁷ It was there pointed out that the change is the result of the Professor's attempt to accommodate himself to the views of his critics, hostile and friendly. Another plausible reason, the vagueness of the hormic analysis of sentiments, will be discussed here. This vagueness is, however, a remediable defect in the system. By carrying the three-fold analysis into the realm of sentiments, it is possible not only to rescue the original theory from deterioration, but also to make use of it for explaining some of the obscure phenomena in the realm of higher aesthetic experience.

Unlike the old-fashioned faculty psychology, hormic psychology recognises the dynamic nature of the human mind. The innate mental structure undergoes continuous and often progressive modification as the result of its living contact with the environment. In the course of this steady modification, the elements of mental structure, called instinctive dispositions or propensities, get organised round 'objects' of various kinds. The natural

excitant of an instinct or propensity (before the afferent side gets conditioned in various ways) is an 'object' in the environment. 'The same 'object,' because it is itself a complex entity, may excite two or more elementary propensities. When several propensities are thus organised round a single 'object,' a 'sentiment' is said to be formed.

Professor McDougall defines sentiment as 'an organised system of emotional dispositions centred about the idea of some object.....a sentiment is a growth in the structure of the mind that is not natively given in the inherited constitution.....it is the organisation of the effective and conative life.....'⁸ Even at this early stage, when the three-fold distinction between the perceptive, the affective and the conative aspects is clearly drawn, we notice a tendency to neglect the afferent and efferent aspects and to speak of the sentiment as an organisation of emotional dispositions. In the next paragraph the Professor includes the conative aspect, but makes no mention of the cognitive aspect. Emphasis is laid on the central aspect in the *Social Psychology*. It is only through the systematic organisation of the emotional dispositions in sentiments that the volitional control of the immediate promptings of the emotions is rendered possible. 'This emphasis shifts to the afferent aspect in the *Energies*. We are told that 'the distinctive feature of each sentiment is the cognitive ability (or system of cognitive abilities) which is its centre or nucleus.'¹⁰ This shift from the central and efferent parts to the afferent part is worthy of note, because it indicates a certain degree of haziness surrounding the very conception of sentiment. 'The essential nature of a sentiment,' says McDougall, 'the scheme or plan of it is, then, a mental system in which a cognitive ability has become, through the individual's experience, functionally linked with one or more native propensities The centre of any such system (of any sentiment) is the cognitive ability ...and this may grow into an extensive system of abilities.....'¹¹ Herein we find a recognition of the need for the three-fold analysis, but the need is felt after a partial abandonment of the very object which will satisfy it. It is, therefore, necessary to make a clearer analysis (of sentiments) which will conform to the scheme formulated in the *Social Psychology*.

Reconstruction of the Theory of Sentiments

In its normal course of development the human mind organises the elements of its innate structure round objects, persons, and ideas, and generates sentiments. The sentiment of hatred, directed towards a bully, for example, is the result of the organisation of the propensities of combat, escape and repulsion round the (visual image of the) person or round the

'idea' of the person. This bully excited, in the first instance, in the mind of the person who has organised the sentiment of hatred for him, the propensity of repulsion by his mean, cowardly and brutal treatment of a defenceless victim. Witnessing such acts of cruelty repeatedly and sympathising with the victim, the person next had his combative propensity excited. And in the fight that ensued, he realised the physical superiority of the bully. The escape propensity was the last to be called into action. All the three propensities were then welded into the sentiment of hatred.

In attempting to understand Professor McDougall's theory of sentiments, the following diagram, an adaptation from the diagram in *Social Psychology* (facing page 440), will be helpful.

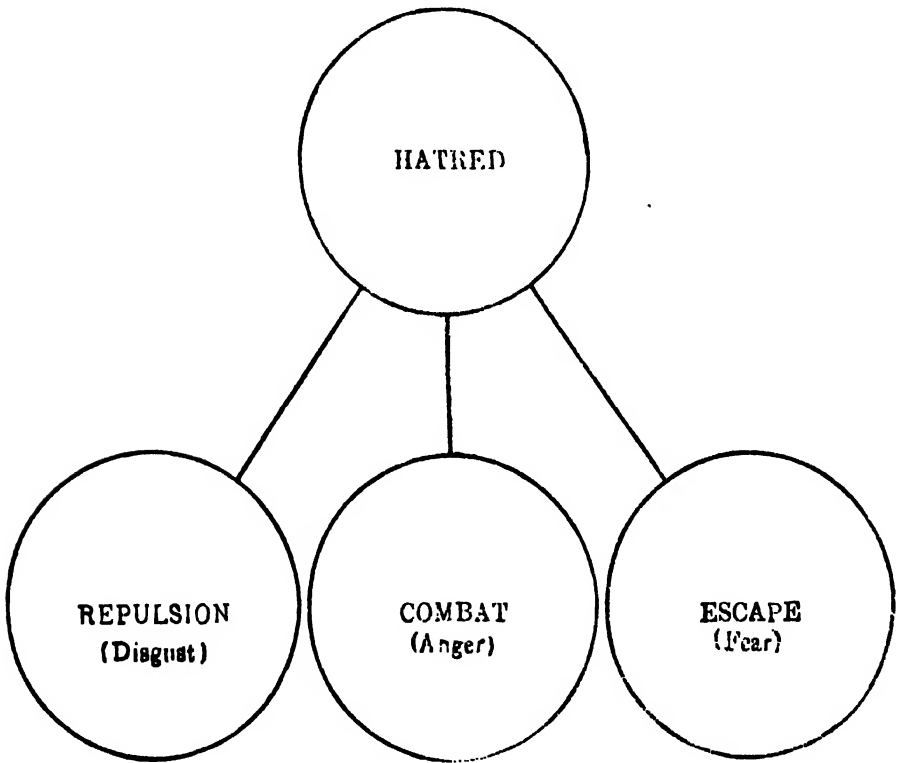


FIG. 1. DIAGRAMMATIC REPRESENTATION OF THE FORMATION OF THE SENTIMENT OF HATRED

The three circles in a line represent the component propensities and the single circle at the top stands for the sentiment. The weak point in the diagram is the representation of the propensities (which have a three-fold structure), and of the highly complex sentiment, by figures which suggest simplicity of structure.

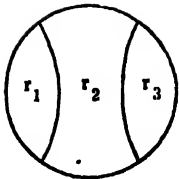
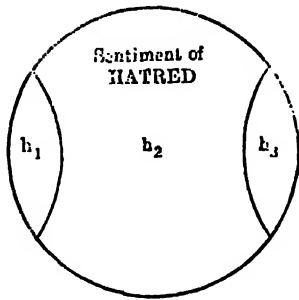
We have to raise a very significant question now : Are we to understand by a sentiment the result of the organisation of emotions or of instinctive propensities? Is hatred the result of the organisation of anger, fear and disgust, or of the propensities of combat, escape and repulsion? After scanning the pages of Professor McDougall's outstanding works we feel that this question cannot be answered in an unambiguous manner. The impression that we get is that the learned professor uses the term sentiment sometimes for the resultant of the interaction of emotions, and at other times for that of propensities. There is, no doubt, a reason for this. In his *Social Psychology* the professor uses two distinct terms—instinct and emotion—to indicate the innate mental structure and its central aspect, whereas the afferent and efferent parts do not receive any specific names. In the case of each individual instinct, too, we find the same state of affairs. Corresponding to each major instinct there is a specific emotion, both receiving clear-cut names, while the cognitive and conative parts are not so named.

If now we go back to our analysis of hatred, we find that the bully who presented different aspects of his own person when he excited the propensities of repulsion, combat and escape separately and at different times, now appears as the blend of all three aspects when he serves as the 'object' of and excites the sentiment of hatred. The perceptual aspects of the three elementary propensities are blended in the corresponding aspects of the sentiment. As the result of this complex excitant, the psychic central or affective aspect of the sentiment is aroused and experienced by the organism. This affective blend of disgust, fear and anger, the sentiment *par excellence* of horemic psychology, has received adequate treatment at the hands of Professor McDougall. But the final activity is as vague and unanalysed as the afferent aspect. The course of action to which the sentiment of hatred leads is very complex. It is neither fight nor flight, but a curious blend of the facial expressions (sometimes of the vocal too) of combat and repulsion with a tendency to retreat from the 'object' of hatred. The following diagram sets forth clearly the facts as analysed by us.

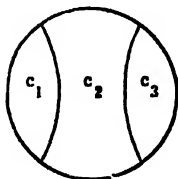
FIG. 2. SCHEMATIC REPRESENTATION OF THE FORMATION OF SENTIMENTS

(as analysed in this paper)

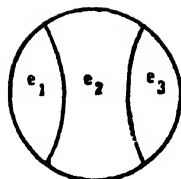
- HATRED. [h_1 —the afferent or cognitive aspect of sentiment, being in this case the 'idea' of the Bully as the blend of $r_1 \times c_1 \times e_1$]
 [h_2 —the SENTIMENT proper, the affective aspect, the resultant of r_2 (disgust) $\times c_2$ (anger) $\times e_2$ (fear)]
 [h_3 —the resultant of $r_3 \times c_3 \times e_3$, e.g., keeping at a safe distance, the facial expressions of all the propensities, vocal expression, etc.]



REPULSION



COMBAT



ESCAPE

r_1 — the meanness and cruelty of the bully

r_2 — disgust

r_3 — wrw face, retreat, spitting, etc.

c_1 — the bully as a hindrance to assertion and sympathy

c_2 — anger

c_3 — fighting

e_1 — the bully as a source of pain

e_2 — fear

e_3 — flight

We notice clearly the advantage which this diagram has over Figure 1. Our contention is that, since there are three distinguishable aspects of sentiments as well as of propensities, these aspects should receive distinct names. The absence of such a clear-cut terminology has led to a certain degree of confusion of thought. We are alive to the obstacles in the way of framing such a precise terminology. Professor McDougall has pointed out in his *Social Psychology* that the emotional aspect alone is unchanging, while the afferent and efferent aspects are subject to infinite varieties of change through conditioning. Moreover, the excitant of a propensity is not a specific object, but a class of objects, not ordinarily grouped together in any scientific scheme of classification, but only thought together in this context because they have this common capacity for stimulating the innate mental structure of the organism. A similar difficulty besets the 'executive' aspect of propensities. Even so, it should be possible to frame a terminology which would keep the three aspects separate. If this be accomplished

in the case of propensities, it would be easy to extend it to the scheme of sentiments. For here, as Professor McDougall has clearly pointed out, the excitants are specific individuals or ideas, and the activity is more clearly defined than in the case of propensities. When we secure a precise and comprehensive terminology on the lines suggested above, we shall have rescued the hormic theory from the tragic fate to which it seems to be drifting now.

The Suggested Reconstruction Justified on Aesthetic Grounds

The clarification of the analysis of sentiments along the lines suggested in the above section is necessary in the interests of the very important hormic theory of *sympathy*. The sympathetic induction of emotions, as understood by psychologists, is the key-note to the explanation of all the obscure phenomena in our aesthetic experience. The concept of 'induction' demands the maintenance of the three-fold analysis.

On the afferent side, the innate mental structure (propensity) is so constituted that it is excited not only by the 'object' or 'group of objects' peculiar to it, but also by the perception of the expression of the emotion pertaining to the propensity when a member of the same species is under the influence of that propensity. The wild horse is afraid not only when he sees a terrifying object, or hears a fearful noise, or is afflicted with sudden pain, or smells the characteristic odour emitted by his enemy, but also when he *perceives the neigh of fear* given out by another wild horse.

Not only the group of 'objects' comprised in E_1 but also e_s , the expression of the emotion of fear in an animal of the same species, is the excitant of 'escape.' This sympathetic induction in animal mind of any propensity by the expression of the emotion belonging to that propensity operating in another animal is the foundation for the explanation of '*rasas*.' If now the central aspect be omitted or merged in the efferent or conative part, then e_s should also be merged in E_3 . The expression of the emotion will then cease to have an independent status in the psychological analysis, and will certainly cease to have any special significance for aesthetics. If in our analysis we confine ourselves to cognitive abilities and conative propensities, it will not be possible for us to speak of 'sympathetic induction', because the expression of emotion is natural and constant, while the final efferent activity is varied and individual. We should postulate, on the afferent side, such an extensive modification of the original mental structure as would admit of the possibility of the perception of each individual efferent activity serving as the excitant of the propensity concerned. This is out of the question.

FIG. 3. SYMPATHETIC INDUCTION OF FEAR

(the operation of 'Escape'
in an organism which has
not actually perceived the
'object')

(the operation of 'fear'
in an organism which has
actually perceived the
'object' of fear)

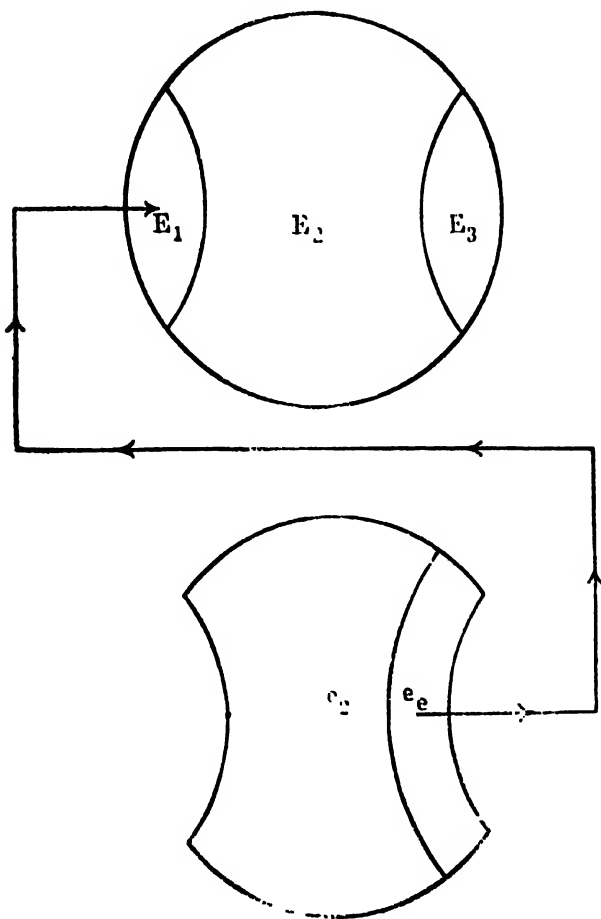
E_1 —the cognitive aspect
of Escape—sudden
loud noise, smell,
etc., and also c . (*vide*
below).

E_2 —the affective aspect—
fear.

E_3 —flight.

c_2 —the emotion of fear.

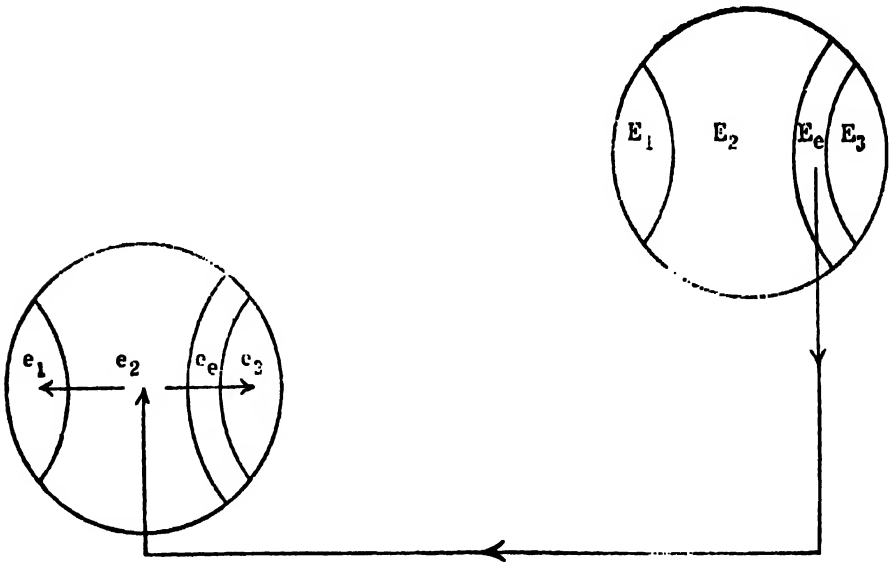
c_e —the expression of
'fear' specially the
vocal expression.



This difficulty increases in magnitude when we consider sentiments. Here the afferent (or cognitive) and efferent (or conative) aspects are complicated by the union of the corresponding parts of the propensities that enter into the constitution of the sentiment. And as the *rasas* in their concrete setting are the result of the sympathetic induction of sentiments in the audience by the 'expression' of the central aspect in the hero or heroine, it would be impossible to throw any light on the difficult problems relating to aesthetic experience (and to empathy in particular) if the central be merged in the final aspect.

The bodily 'expression' of the emotion of anger, in a dog for example, specially the snarl or growl of anger, induces the same emotion in other dogs within hearing of the angry bark. The energy released works forward and results in appropriate activity, and also works backward, by a kind of back-stroke as it were, and arouses the 'idea' of the 'object' or 'class of objects' which constitutes the natural excitant of the combative propensity.

FIG. 4



The same process occurs in the case of sentiments too (*vide* Fig. IV). The perception, by the well-informed and cultured audience of the expression of 'love' (in the courtship scene in *Sakuntalam* for example) excites the same sentiment (understanding sentiment as a product of the organisation of the central or emotional aspects of the several propensities that enter into this compound) in their minds. The energy works backward and arouses the 'idea' of the 'object' which, for each individual member of the audience, is the unique excitant of 'love'. (We know that the excitant for a sentiment is a specific object, and not a class of objects.) The sym-

pathetic induction of this sentiment does not (and should not) result in the audience falling in love with the hero or the heroine. If it did result in such an abnormal situation, as it might in the case of depraved minds, it would cause intense pain, since the last aspect would have to be forcibly suppressed. In the normal course of its working, the sentiment sympathetically induced in the audience would recall to the mind of each member his or her own unique past experiences relating to the final aspect. Such recall need not necessarily be pleasurable. The favourable reception of the lover's advances will recall similar experiences resulting in pleasure, while rebuffs may put the audience in mind of similar painful experiences. The affective tone of a *rasa* need not always be pleasurable.

We have tackled here only one small problem connected with the psychology of *rasas*. Several others, more obscure and puzzling, may also be successfully resolved if the three-fold analysis be preserved. In the absence of the three-fold distinction we shall be at sea when we are confronted with difficult sociological and aesthetic problems demanding psychological solutions.

Conclusion

We have indicated the direction of the evolution of the hormic theory of instincts, stressing the important stages in its course. The reason why the last stage appears to us to be a set-back has been indicated. Attempts have been made to maintain the three-fold analysis of propensities and to reconstruct the theory of sentiments. Three aspects of sentiment, corresponding to those of instinct, have been distinguished, each from the others. It has been suggested that the term 'sentiment' may be used exclusively for the central or affective aspect, and that two other suitable terms may be coined for the other aspects. Finally, it has been shown that the three-fold distinction is absolutely necessary for a psychology which would be of help to aesthetics and sociology.

References :

- ¹ *Social Psychology*, p. 25.
- ² *Italics ours.*
- ³ *Ibid*, p. 29.
- ⁴ *An Outline of Psychology*, p. 119.
- ⁵ *Ibid*, p. 321.
- ⁶ *Social Psychology*, p. 405, (*Italics ours.*).
- ⁷ Naidu, McDougall's *Hormic Theory of Emotions*, *Phil. Quarterly*, July, '38.
- ⁸ *Social Psychology*, p. 137.
- ⁹ *Ibid*, p. 137.
- ¹⁰ *Energies of Men*, p. 223.
- ¹¹ *Ibid*, p. 223.

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A Scheme for Recording Heredity

G. BOSE

SYMBOLS : The members of a family are represented by numbers. Each member has an individual number which indicates his place amongst his brothers and sisters. The female member is indicated by a dash over the digit.

Examples : 3 represents the third issue of his parents who is a male. 4' represents the fourth issue who is a female.

A horizontal dash or a line — connects a parent and a child. The left hand figure represents the parent, and the right hand figure the child.

Example : 3—2 indicates that 3 who is the third issue of his parents is the father of 2 who is the second child.

A vertical dash or line | or a dot . between two figures vertically placed connects brothers and sisters.

Examples : $\begin{smallmatrix} 3 \\ | \\ 2 \end{smallmatrix}$ shows the relationship between the third and second issues, both males, of the same parents. $\begin{smallmatrix} 4 \\ | \\ 5' \end{smallmatrix}$ indicates that 4 is a brother and 5' a sister and that they are respectively the fourth and the fifth issue of

the same parents. The above symbols may also be written as $\begin{smallmatrix} 3 \\ . \\ 2 \end{smallmatrix}$ and $\begin{smallmatrix} 4 \\ . \\ 5' \end{smallmatrix}$.

A horizontal dash or a line — separating two figures placed one above the other represents conjugal relationship.

Examples : $\begin{smallmatrix} 3 \\ - \\ 4' \end{smallmatrix}$ represents that the husband is the third issue, and the wife the fourth issue of their respective parents. The upper figure determines whether the symbol stands for the husband or the wife.

$\begin{smallmatrix} 3 \\ - \\ 4', 6' \end{smallmatrix}$ indicated that 3 married two wives. $\begin{smallmatrix} 3' \\ - \\ 5 \end{smallmatrix}$ means that the person con-

cerned is the third issue of her parents and that her husband is the fifth issue of his parents.

The number of issues of a couple may be indicated as follows :

$\frac{3}{2'} - \frac{III}{II'}$ means that the couple $\frac{3}{2'}$ has three male and two female

issues. The number of children may be indicated in detail as in

$\frac{3}{2'} - \frac{I}{II'}$ or $\frac{3}{2'} - \frac{I}{2'}$
 $\begin{array}{c} 3 \\ | \\ 5 \\ | \\ 2' \\ | \\ 4' \end{array}$ or $\begin{array}{c} 3 \\ | \\ 2' \\ | \\ 3 \\ | \\ 4' \\ | \\ 5 \end{array}$

which means that the couple $\frac{3}{2'}$ has five children of whom the first, third, and fifth are males and the second and fourth are females.

When the exact position of a person among the brothers and sisters is not known the person may be represented by the letter x, and when the exact numbers of brothers and sisters are not known they may be indicated

by the letters B and S respectively. $\frac{4}{3'} - \frac{x}{B}$ means that the exact

numbers of male and female issues of the couple $\frac{4}{3'}$ are not known and that the position of the subject also among his brothers and sisters is not known.

An arrow-head \rightarrow connecting a figure with a letter or letters or a symbol indicates that the individual represented by the figure suffers or suffered or is or was liable to suffer from the disease represented by the letter or letters or has or had certain characteristics indicated by the symbol. When the letter is enclosed within a square it indicates that the disease was the cause of death of the individual. A figure placed under the letter within the square indicates the age of death.

Example : $3 \leftarrow \frac{Ep}{10}$ indicates that 3 died of epilepsy at the age of

ten. Ep is here an abbreviation for Epilepsy.

A "Subject" is the person with reference to whom a relationship is expressed.

A "Reciprocal" is the person whose relation with the subject is expressed

"Relation" is a formula for expressing the family relationship between the subject and the reciprocal. It consists of a series of digits placed side by side, or rows of digits placed one above the other or both. The digit standing for the subject is marked with a \times and that for the reciprocal is marked with a circle \circ .

Counting from any digit the figures to the right represent subsequent generations and those to the left preceding generations.

Examples :

(1) $\begin{array}{c} \times \\ 3-2-4'-2 \end{array}$ means that the subject 3 who is the third issue of his parents is related to the reciprocal 2 who is the second issue of his mother who in turn is the fourth issue of her father who again is the second issue of the subject.

(2) $\begin{array}{c} \times \\ 2-6'-4 \\ | \\ 3-2-1-2 \end{array}$ means that the reciprocal $\circ 2$ is the second issue of

his father who is the first issue of his father who is the second issue of his father who is the third issue of his father whose second issue is the father of the mother (6th issue) of the reciprocal who is the fourth issue.

(3) $\begin{array}{c} \times \\ 2-4 \\ \circ 1-4-3' \end{array}$ means that the reciprocal's $\circ (1)$ fourth issue's third issue's husband is the fourth issue of the subject $\times 2$ who is the second issue of his parents.

(4) $\begin{array}{c} \times \\ 1-4 \\ 3' \\ | \\ 2-1 \end{array}$ means that the reciprocal $\circ 1$ is the first issue of his

father who is the second brother of the wife (the third issue of her father) of the fourth issue of the subject.

(5) $\begin{array}{c} \times \\ 2'-1 \\ | \\ 1 \end{array}$ The reciprocal $\circ 1$ is the maternal uncle of the subject.

When owing to exigencies of space it is not possible to record the number and position and other details of the issues of any particular individual an asterisk may be placed against the figure representing the individual and a full record may be noted in another place :

$$\frac{3}{*4',6'}$$

$$\begin{array}{r} 3 \\ *4' - \frac{1}{2'} \\ \cdot \\ 3' \\ \cdot \\ 4 \end{array}$$

The issues of the first wife of 3 have been noted separately.

CALCUTTA

Obituary

HAVELOCK ELLIS

1859-1939

Henry Havelock Ellis was born at Croydon on 2nd February, 1859. His father, Edward P. Ellis, was a captain in the British merchant service and the news of the birth of his son reached him through the 'Births' column of the *London Times* of February 5th which he happened to see in Singapore. Always the chief interest of his lonely mother, the child Henry absorbed her attention completely during the first three and a half years of his life. Perhaps this circumstance accounts for Havelock Ellis's feminine tenderness which combined so subtly with his robust intellect. After being the sole companion of his mother for nearly four years, he resented at first the invasion of his infant sister, Mary, whom he dubbed 'a little bit of dirt and rubbish.' The outstanding event in his childhood which occurred between his seventh and eighth year, was a voyage round the world in a full-rigged ship, captained by his father. On his return to England, he went to a school directed by Mrs. Granville along the lines of Pestalozzi. At this age he showed that extreme shyness which characterised him throughout his life. It is said he never made a personal enemy in striking contrast to Sigmund Freud who considered a hated enemy indispensable to his emotional health. He was not at all precocious and, as a boy, gave little indication of his future powers. Between his twelfth and fifteenth year, Ellis began to show that he possessed an encyclopædic curiosity and a passion for classification. As there were few books in his home, his chief source of information was some old files of *The Penny Magazine of the Society for the Diffusion of Useful Knowledge*. About this time Ellis developed an interest in art and went constantly to exhibitions of Painting and Sculpture. Among his more hardened schoolmates he was probably considered a prig while in his own mind he was still a literal child of God, warmed by the hope of preaching one day the gospel of Jesus Christ. In his sixteenth year the family physician considered that Henry showed signs of tuberculosis and that a long rest at sea was what

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he wanted. Acting on the family doctor's advice his parents sent him on a voyage to Australia in his father's ship. The voyage was quiet and uneventful, save for a near catastrophe in the South Atlantic when a huge roller broke over the ship with such a violence as to astonish even his father. The only comment on the situation which Henry made was : "Does th's often happen, father ?" Ellis's extreme shyness led many to suppose he was physically timid but this was not so. All his life he was the tranquil and curious spectator. On his arrival in Sydney he became assistant master in a school at Burwood, a suburb of the capital. About this time Ellis became tormented with thoughts about sex to such an extent that in the school grounds of Burwood he made up his mind to devote himself to the study of the matter in order to save other young people from the perplexities which tormented him. After three months at Burwood, he gave up the work, and became a tutor to a family at Carcoar, a straggling agricultural settlement seventy miles from Sydney. Here he stayed forty months amid the silent undemonstrative farmers and the weird beauty of the Australian bush. In April, 1879, Ellis returned to London and took up work as a teacher at a school near Birmingham. In that year Ellis began his first original book, a study in the psychology of religion. While in Australia, Ellis made the acquaintance with the works of that most remarkable man, James Hinton, who had died in 1865. Hinton had expressed quite revolutionary ideas on matters of sex and maintained that an elastic form of polygamy was the only cure for the prevailing evils. Hinton's views made a very deep impression on Ellis. In October, 1880, Ellis entered St. Thomas' Hospital in London and in 1889 he qualified as a Licentiate of the Society of Apothecaries. In 1884, Ellis began his lifelong friendship with Olive Schreiner, the author of the famous novel *The Story of an African Farm*. Olive Schreiner was the outstanding friend of Ellis's life and perhaps the only human being to whom he was able to pour out his soul. In 1890, Ellis gave up the practice of medicine and devoted himself entirely to literary work. During that year he paid a visit to Paris where he made the acquaintance of several notable writers and artists. Towards the close of the year, Ellis met in Cornwall the woman whom he eventually married, Miss Edith Lees. In December of the year following, Ellis and Edith Lees were married by the Registrar of Paddington, London. For the most Mrs. Ellis lived in Cornwall while he lived in his flat in London. During much of her life Mrs. Ellis was an invalid, and on this account she renounced the idea of becoming a mother. By those who knew her she will be remembered as a flaming personality of great insight and courage. In 1897, Queen Victoria celebrated her Diamond Jubilee and

Oscar Wilde was released from prison. For two years previously Ellis had tried to have the first of his volumes on the *Studies in the Psychology of Sex*, entitled *Sexual Inversion*, published in England. None of the medical publishers whom he approached cared to take it up. In his search for a publisher, Ellis fell into the hands of a clever rogue, who called himself "Dr. De Villiers." This man's real name was George Ferdinand Springmuhl von Weissenfeld and was a man of many aliases. A German by birth, he had won and lost several fortunes in England. A melodramatic character, gentle, morose, intellectual, with a passion for mystification, he had engaged himself in numerous frauds and conspiracies. A few years after the storm which the publication of *Sexual Inversion* evoked, he killed himself in his home near Cambridge. It so happened that among various radical organizations flourishing in London at this time was 'The Legitimation League, chiefly interested in giving a legal status to so-called 'natural children'; but also in the principle of divorce by mutual consent and other problems of sex relations. The cause was advanced through regular meetings at Holborn Restaurant or St. James's Hall, and a monthly magazine, *The Adult*, published by The University Press of Watford. The Founder and President of the Legitimation League was Miss Lillian Harman, of Chicago, whose chief supporter was young George Bedborough, secretary, and editor of *The Adult*. The living-room of his flat, formerly occupied by De Villiers, served as office and bookstore for the League. As might have been expected, the Comstocks of Scotland Yard looked on this movement with disfavour and were waiting for an opportunity to break it up. Detectives watched Bedborough's house with the quaint hope of raiding a homosexual orgy. They failed in that, but discovered that an 'immoral' book called *Sexual Inversion* was being sold there. Their suspicion was naturally increased by the fact that the book was not brought out by an established medical publishing house, but by an obscure firm, under a pseudo-academic imprint. (For this reason the editors of *The Lancet* would not allow it to be reviewed in their columns.) On the 27th of May, 1898, a disguised detective bought a copy from Bedborough himself, who was shortly afterward cast into Holloway Jail. Before Sir John Bridge, of the Bow Street Police Court, Bedborough was charged with 'publishing an obscene libel,' which means circulating an indecent work, 'with the intention of corrupting the morals of Her Majesty's subjects.' After three days' imprisonment, Bedborough was released on one thousand pounds' bail, which was at first entirely refused. On 13th June the prosecution was again taken up at Bow Street. A number of 'criminal' passages from Ellis's book were read out. The case dragged on into the summer. On August 6, Bedborough's counsel

made an attempt to have the case removed from the Central Criminal Court to the High Court of Justice. The request was flatly refused. On the 14th September, Bedborough was formally indicted by the Grand Jury. The trial took place on the last day of October, 1898, in the famous Central Criminal Court of the Old Bailey. Sir Charles Hall, Recorder of London, was on the dais. In the end Bedborough was bound over in his own recognizances, in the sum of £100, to come up for judgment if called upon. The splendid storm had ended in a chilling drizzle! Ellis watched the progress of the case and had the mortification of hearing his book described in a High Court of Justice as "filthy and obscene," "a pretence and a sham." Very soon afterwards, Ellis found a publisher in America, the F. A. Davis Company of Philadelphia, in whose hands the publication of the entire series of the *Studies in the Psychology of Sex* has remained. On other topics than sex, Ellis was a prolific writer. Perhaps his best book of all is *The Soul of Spain*, for Spain is a country Ellis deeply loved and admired.

Although a recluse in his later days, he was delighted to see visitors. I recall taking Dr. Ernest Jones, the eminent psycho-analyst, to call on him and, at another time, Professor J. C. Flugel, the well-known psychologist. Neither Jones nor Flugel had ever met Ellis although both had longed to make his acquaintance. At that time Ellis lived in an almost inaccessible flat in a remote part of London. He kept no servant and did his own cooking. Although very abstemious, he liked good wine and good food. Although gifted with a gentle temperament, Ellis was no soft and simpering lover of mankind in general. On the contrary, he was apt to agree with Jesus' description of mankind as 'a generation of vipers.' He preferred to avoid contact with the crowd. "I do not like," he said, "drinking at those pools which are turbid from the hoofs of my fellow creatures; when I cannot get there before the others, I like to wait until a considerable time after they have left." He said that he had never done an unselfish thing in his life, but Mrs. Ellis saw a trace of both drudgery and unselfishness in his attitude to his voluminous correspondence. It is not an exaggeration to say that he surveyed the world more wisely than any one else and presented his observations in a masterly order. Those who knew him, as those who read him, acquire not only new facts but a new vision.

PROFESSOR WILLIAM McDUGALL

1871-1938

William McDougall was born in Lancashire, on June 22, 1871, and died in Durham, South Carolina, on November 28, 1938. He chose in his youth to devote his life and talents to the service of Psychology and it must be said that not only he consistently lived up to his choice, but also he gave a service of which the most gifted and sincere worker in the subject can be proud.

McDougall was a precocious child and after his early education in a private boys' school from 5 to 14, he spent a year at Weimer in Germany.

On his return he entered into Owens College, Manchester, in his fifteenth year. He took college life with great zest and shone as an all-round sportsman as well as in the intellectual field. Most of the Professors of the Science Faculty of the University were fellows of the Royal Society and his ambitious nature made him aspire for this great distinction even from his early college days.

Four years in Manchester, and four years again in St. John's College, Cambridge, were followed by another four years in St. Thomas' Hospital, London. McDougall had picked up special interest in physiology during his Cambridge period, and he entered into the medical course mainly to qualify himself further for original research in this and allied lines. He then joined the Cambridge Expedition to Torres Straits. After helping Dr. Rivers for some time in his work of sensory survey of the islanders there, he accepted the invitation of Dr. Huse for collaboration in his anthropological study of the Headhunters of Borneo. He married on his return to Europe in 1900.

While still a medical student at London, McDougall had felt attracted towards Psychology under the influence of James's *Principles*. He decided after his marriage to spend a year at Göttingen to carry on some psychological experiments under G. E. Müller. He was appointed Lecturer in Psychology at University College, London, soon after his return from Göttingen. He later became Wilde Reader in Mental Philosophy at Oxford in 1904. The Oxford atmosphere at that time was not at all favourable for

active pursuit of the new science of psychology, but McDougall soon had about him a small number of enthusiastic students (Cyril Burt, William Brown, J. C. Flugel and others) and had also at his disposal, through the courtesy of Prof. Gotch, a laboratory room for psychological research in an un-official way. He soon proved an inspiring teacher of psychology and 'sometimes drew good audiences.'

McDougall's teaching and research work at Oxford continued till 1914 when he was called to War. He began his war life as an ambulance driver in France but he later became a major in the Royal Medical corps, dealing with shell-shock cases. Before he joined the War, he had, however, received recognition for his meritorious work at Oxford and had been elected to the Fellowship of the Corpus Christi College and of the Royal Society in 1912. On the basis of his wide experience of war-neuroses, he was elected president of the Psychiatry section of the Royal Society of Medicine after the War was over.

The problem of psychophysical relation engaged his interest in his early writings. Impressed equally well by the work of Sherrington and by the writings of William James, he very soon perceived the necessity of correlating the psychological approach to 'the intricacies of human nature' with the physiological one. In a number of papers published between 1901 to 1905 he sought to explain many sensory and perceptual phenomena by physiological hypotheses. He brought out his 'drainage theory' of inhibition in 1903, and presented a systematic physiological account of mental processes in his *Physiological Psychology* in 1905—a small volume which has been, till recently, one of the best text books on the subject. His interest moved after this more to biology and to psychology, but he returned in 1911 to the mind-body problem in his larger work, *Body and Mind : A History and Defence of Animism*, in which he has given us the strongest argument for Interactionism.

Physiological Psychology was McDougall's first book, and *Introduction to Social Psychology* (1908) his second. The latter was intended as a preliminary to a more ambitious plan of work in social psychology in future, a hope which alas! has not been fully carried out. But the Hormic theory which forms the main contribution of McDougall to contemporary and, perhaps, future psychology, was for the first time outlined in this book. It became popular at once and brought considerable publicity to McDougall.

Two books followed the *Introduction* before he left for the War—*Body and Mind* (1911) and *Psychology, the Study of Behaviour* (1912).

On his return from the War, McDougall found increased interest in psychology at Oxford; and he worked upon his materials on collective

psychology and published his *Group Mind* in 1920. Invitation came at this time from Harvard to fill the Chair of Psychology fallen vacant there by the death of Munsterberg during the War. He hoped for a better scope of work in America and accepted the Harvard offer in 1920. He did not find, however, a very congenial atmosphere there. He himself refers to the different factors responsible for his partial disappointment in his autobiographical account in Murchison's *History of Psychology in Autobiography*. His arrival in America coincided with a hostile criticism of his just published *Group Mind*. He also unwittingly touched American pride in his Lowell lectures which came out as *Is America Safe for Democracy?* Furthermore, American psychology had drunk deep from Watsonian behaviourism and was not in a mood to appreciate his hormic theory of life. He could not get full opportunity even for experimental work. He had to give up his favourite line of experiments on vision and go in for experiments with white rats to test the accepted theory of Weissmann on the transmission of 'acquired characters.' The experiments have not, however, been in vain and have proved of outstanding importance for indicating the value of the Lamarckian theory.

McDougall was in Harvard from 1920 to 1927 and then moved to the Duke University. In 1923 he published his *Outline of Psychology* in which he presented his hormic theory more systematically and elaborately than in the *Introduction to Social Psychology* or *Psychology, the Study of Behaviour*. He next worked upon his voluminous notes on psychiatric experience of war-neuroses and brought out in 1926 his *Outline of Abnormal Psychology*. In the *Outline* he makes an attempt to bridge over the wide gulf between clinical psychology and academic psychology mainly on the basis of his hormic theory.

From 1927 till his death last year, McDougall has led a very intellectually busy life, writing many books and articles and engaging himself in many controversies on problems of contemporary psychology. But much of this later writing are repetitions or elaborations of his former views. He was specially concerned of late to explain the applications of his hormic theory on different aspects of individual and social life. Some of the more important volumes of this later period are *Character and Conduct of Life* (1927), *Religion and the Sciences of Life* (1934), *The Frontiers of Psychology* (1934), and *Psychoanalysis and Social Psychology* (1935), and *Riddle of Life* (1938). In his *Energies of Man* (1932) he re-states his hormic theory with retouching at some points.

The peculiar social position of his family, his exceptionally rich talents, the early ambition of his parents about his future career, and the conditions

of his education which placed him either below or above the average age of his class-fellows, together with his specially handsome appearance, constituted sufficient reasons for making McDougall more than usually self-conscious from the beginning of his life. His unusual self-consciousness was very probably at the root of the strong sense of individuality which marks his writings and also of what he has himself described as 'arrogance.' It is idle to speculate now what would have been the history of his intellectual life and what form his service to Psychology would have taken if his genius was minus this 'arrogance.' But, as he actually was, he had to go through, specially in the later part of his life, feelings of disappointments and doubts about the value of his work mainly because of his keen sensitiveness to others' reactions, which, I think, constituted the other side of his 'arrogance.' As Flugel points out, "he failed to realise the full degree of the influence he was exerting."

It is perhaps on account of this characteristic of his nature that McDougall failed to get up a strong and widely supported 'school' of psychology round his hormic theory, like many other contemporary originators of new views of mental life. As he has himself said, he had a strong predilection for opposing prevalent opinions on any subject. This critically reactive attitude of his was not, however, mere vanity. It inspired in many cases sustained efforts of really good and productive work. It has given us at least a masterly, and I may say, a classical exposition of the Interactionist position, a highly interesting series of animal experiments on the fact of the Lamarckian transmission, and a good text-book on Abnormal Psychology, in which a praiseworthy attempt is made to bridge over the the gulf between clinical and academic psychology.

McDougall's main contribution to the hormic theory is certainly a positive one and arises from deep original convictions. Intended as a psychological foundation of the social sciences in the *Introduction to Social Psychology* (1908), the hormic concept has come to occupy the central position in his system of psychology. After being briefly dealt with in *Psychology, the Study of Behaviour* (1912), it received its full exposition in *Outline of Psychology* (1923). According to it, purposive striving is the fundamental characteristic of life and in human mind manifests itself in the form of a number of instincts. All mental processes are sustained by the purposive striving of instincts. Sentiments are organisations of instinctive dispositions and their derivatives on a higher plane, just as instincts themselves are inherited organisations of perceptual, emotional and reactive dispositions on a lower plane. Personality is the result of organisation of sentiments round about the special sentiment (of self-regard). In the *Energies*

of *Man* (1933), he lays special stress on the experience side of instincts and points out that we have a rudimentary foresight and insight even on the instinctive level.

McDougall's Hornism is historically related to Stout's psychology of conation. In fact, it may be described as a further development of the latter. McDougall has, however, given the theory of conation not only a wider and more empirical basis but also a much greater sweep of application in many fields, specially in those of social and abnormal psychology.

It would be too much to say that the hornic theory gives an adequate explanation of all the intricacies of mental life. In fact, it does not explain much. But by its very simplicity it focuses our attention, at the time of widely divergent outlooks as regards the true character of our science, to certain fundamental facts. It brings together, in a unitary perspective, not only many apparently disconnected phenomena of psychology and biology, but also view-points of the warring schools of contemporary psychology at many places. If we leave out a few extreme behaviourists, there are not many psychologists at present, whether they belong to the Gestalt, Behaviouristic, or Psycho-analytical schools, who would not accept the main tenet of Hornic psychology, *e.g.*, that our complex mental life is a structure organised from certain basic instinctive dispositions.

CALCUTTA

H. P. MARTI

* Help has been obtained for the writing of the article from Murchison's *History of Psychology in Autobiography* and Flugel's article on W. McDougall in Vol. XXIX of *Br. Jr. of Psychology*.

Book Reviews

GOALS OF LIFE—By H. D. Jennings White, M.A., Ph.D. *Published by C. W. Daniel Co. Ltd., London (1939). Price 3s. 6d.*

It is a brilliantly written and thought-provoking little book comprising within its scope a large variety of topics. Students of Ethics as also of Psychology—the former more than the latter—will find many of the problems, which they are accustomed to deal with, presented here in a new method of a popular manner. Besides emphasising the concepts of harmony, which itself is not a new concept, I am afraid no new solutions have been attempted of the age-old problems of conduct and morality which have been puzzling philosophers and moralists ever since the dawn of civilisation.

S. C. MITRA

CHILDREN IN FOSTER HOMES—By Marie Skodak, Ph.D. *Published by the University, Iowa City, Iowa. Price \$1.00.*

The monograph reports the highly interesting results of early part of an extensive research programme undertaken by the Iowa Child Welfare Station on mental development. Two groups of children born of parents inferior in intelligence, education, cultural attainments and occupational position, were placed early in life in foster homes of a 'good middle-class' type. The first group consisted of 154 children below the age of 6 months, and the second group of 65 children ranging in age between two and five and one-half years. Intelligence tests were applied on the children at intervals after placement, and relations of their intellectual development with different factors have been presented in the present monograph.

The most striking result of the study is that the I. Q. of the children in foster homes has no relation to the I. Q. of the true mothers. Whereas the mean I. Q. of the latter in one group was 87.7, that of their children after being brought up in the foster homes was 116.0 with a standard deviation of 13.6. A difference of about 30 I. Q. points between mothers and children, and a positive correlation between children's intelligence and

occupational levels of the foster parents, may undoubtedly be cited as clear arguments in favour of Environmentalism, and, in this sense, the study is bound to be of enormous significance to all those who are interested in the improvement of future humanity as well as to those interested in psychological research. In view of the small number of subjects under investigation, and also of difficulty of intelligence testing of children below 3 years with as much reliability as above that age, one would certainly wait for more extended studies on the line; but we have no hesitation in saying that Dr. Skodak has done a great service to our science by her investigations in a field which is extremely important but which bristles with difficulties.

H. P. MAITI

SURPRISE : A HISTORICAL AND EXPERIMENTAL STUDY—By Mahesh M. Desai, M A., B Com, LL.B., Ph.D. (*British Journal of Psychology: Monographs Supplements*, 1939), pp. x + 124. Price 12s 6d.

The work under review forms an integral part of the thesis submitted by the author for his Doctorate degree and approved by the University of London. The work is divided into two portions. The first one is concerned with a critical survey of many problems connected with surprise, e.g., the relationship of surprise and attention, inhibitory tendency of surprise, expressions of surprise, etc. In the second part the author gives the details of his own experiments and the results of his researches.

He employed both the method of Expression as also of Impression though he relied more on the introspective data of trained subjects collected by the latter method. Some of the interesting results of the experimental study may be given here in the author's own words :—

(1) " Surprise tends to arrest the motor activity in which the subject is engaged at the moment of surprise. There is also some indication that thought processes as well as involuntary activities, involved in respiration and in the functioning of the heart, might be momentarily checked under surprise."

(2) " The surprising stimulus tends to become focal at the expense of the existing processes, whether cognitive, emotional or conative."

(3) " Under surprise the emotional value of a stimulus is enhanced."

(4) " Surprise tends to occur when an expectation (conscious or non-conscious) is frustrated or when the stimulus conflicts with or is incompatible with previous knowledge, belief or experience."

(5) " Surprise, in and of itself, is not a cause of laughter."

The monograph is written in a very clear and lucid style and contains much valuable information which may be profitably utilised by subsequent workers in this field. Experimental studies of feelings and emotions from the psychological standpoint are not often met with. Let us hope that this monograph will inspire other investigators to undertake further researches in this domain.

A. DATTA

Abstracts

CULTURAL SCIENCE PSYCHOLOGY —By INDRA SEN (*Presidential Address**
Psychology Section, Indian Philosophical Congress, Allahabad, 1938)

Dr. Sen has chosen as the subject of his address a tendency in Contemporary German Psychology for two reasons, *viz.*, (i) that it is not adequately represented in English books on the subject, and (ii) that it is the most striking thing in recent psychology as a whole, as it promises to provide the proper psychological foundations for art, literature, science, religion and other products and aspects of our social and cultural life. It is called in German *Geisteswissenschaftliche Psychologie* (Cultural Science Psychology) in contrast to *Naturwissenschaftliche Psychologie* (Natural Science Psychology). Dr. Sen has also chosen to offer a few general observations regarding the position of Psychology in the Philosophical Congress and proposed a change in the existing mode of teaching the subject in the country.

It is a fact that all our education is unrelated to the environment, social, cultural or physical. The same is true also of scientific and philosophical thought and research; and that is why we have not succeeded in recent times in making such a contribution to Science and Philosophy as perhaps otherwise we could have done. The really effective motives for fresh scientific and philosophical thought can only be actuated in us by the problems presented to us by our environment. We have therefore to remain continually alive to the demands of the life of the country. A psychological investigation of the cultural phenomena in particular will serve to give us an insight which will help to create a better understanding of the differential features of the various cultures.

Psychology is looked upon as rather a stranger in the Philosophical Congress. Whatever might be the reasons which led the philosopher-psychologist to adopt this attitude, Dr. Sen thinks that there are reasons why it should continue to figure as an active section in this body even when it has been accepted and given place in the Science Congress.

But before presenting the manifold reasons showing the various points of contact between Psychology and Philosophy, Dr. Sen would plead that the experimental method should now receive proper recognition even at the

hands of the philosopher-psychologist. We require to-day to cultivate in the study of Psychology the spirit of observation of facts and for that it is necessary that our psychology lessons should at least be accompanied by suitable demonstrations. These demonstrations need not be very elaborate. It is necessary to do so as "Psychology without the experimental part is to-day anachronism." We can neither understand nor teach Psychology without some experience of the experimental method. But the experimental method is certainly not the whole of Psychology. The higher functions of will and thought and the unity and uniqueness of personality are certain striking features of mental life which perhaps will never be made to fit into the technique of the experiment. Dr. Sen thinks that Psychology will always stand in need of the services of the philosopher and the philosopher will always have some use of Psychology. H. P. Maiti in his presidential address in 1934 emphasised the various points of contact between Psychology and Philosophy and Dr. Sen would support and supplement Mr. Maiti's statement by saying that the philosopher-psychologist will perhaps always have even an independent field of mind to investigate and study. This independent field of investigation will primarily consist of all facts which are not amenable to experiment and which, if forced into experiment, a perversion of truth and fact is likely to result. Likewise the numerous disputes of standpoints, the various non-experimental movements in Psychology and the psychological method of philosophy which has created a permanent place for itself in Philosophy will tempt and engage the philosopher-psychologist. Next there is a whole field of psychology which is bound to please the philosopher a great deal. It is the Cultural Science psychology.

Cultural Science Psychology differentiates out from the natural science psychology first in the recognition that the facts of mental life are fundamentally of a different order from those of natural science. A mental process is always somebody's process and to talk of a 'state of consciousness' divorced from its subjective reference is really to see it in a mutilated form. Now this subject is in continuous interplay with the environment and so continually creates values of various kinds, economic, political, moral, religious, scientific, etc.

The values of our cultural life, as exemplified in art, literature, etc., have ultimately been created by some subjects. Thus the study of personalities becomes the fundamental importance for cultural science psychology. Hence we must understand the different types of uniqueness of 'personality structures,' because they hold the clue to the understanding of the different objective manifestations of culture. Thus cultural science psychology will tend to develop primarily an 'individualising' tendency of the historian to study

and classify uniquenesses rather than discover general laws which the natural sciences do.

The method of investigation of mental phenomena for natural science psychology to-day is predominantly the experimental method. Mental phenomena are conceived here as facts of existence. Cultural Science Psychology, on the other hand, aiming at meanings rather than 'states of consciousness,' finds the experimental method unsuited. Therefore a new method is proposed which investigates by relating a fact to the whole that it belongs to. This is the method of understanding.

With the help of experiment, natural science psychology aims primarily at quantitative determination of experience. Cultural science psychology, on the other hand, following the method of understanding, is more interested in the qualitative aspect of experience. Thus the two kinds of psychologists are supplementary in character. They represent two different lines of approach to the same subject-matter. And judged by the measure of success that both of them have had in the application of their doctrines, one feels encouraged to affirm that either of them possesses a measure of validity. If this reconciliation between the two standpoints is possible then Philosophy and Psychology can meet again and be friends. They can co-operate in common cause to study mind expecting to supplement and make good the defects of each other. And a compromise also becomes possible regarding the conflict of claims over the matter of psychology between the Philosophical Congress and Science Congress as the former would naturally patronize the cultural science psychology and the latter natural science psychology. A positive amity will even grow if the realization deepens that the standpoint of cultural science psychology and that of natural science psychology are supplementary and thus helpful to each other.

A. DATTA

SOME RACIAL DIFFERENCES IN PERCEPTION.—By W. M. Beveridge (*British Journal of Psychology*, Vol. XXV, Part I—July, 1930).

In this paper the author describes three sets of experiments—(i) Phenomenal regression for brightness and whiteness, (ii) Picture preference test, and (iii) Mental compromise in estimating direction. The first two experiments were conducted on West African male students and the results were compared with those found by Dr. Thouless on the Scottish students. In the last experiment besides 52 West African male students, 20 European

(10 men and 10 women) acted as subjects. The results of the experiments are given below :—

1. African students show less phenomenal regression for brightness, more for whiteness, and therefore more discrimination between the two, than do British students.

2. This great tendency to phenomenal regression is reflected in African art, but it does not lead African students to prefer Oriental to European pictures.

3. Our perception of the horizontal depends to a considerable extent upon visual clues. When these contradict the more reliable internal clues, most people make an unconscious mental compromise.

4. There are very large individual differences in the amount of this mental compromise.

5. There is very probably also a racial difference, Africans being less affected by the visual clues than Europeans.

6. Mental compromise in estimating direction has a positive correlation with age, with extrovert tendencies of temperament, and very probably with phenomenal regression. It probably has a negative one with intelligence. Further investigation is, however, necessary.

A. DATTA

CHANGES IN FIGURE-GROUND PERCEPTION IN PATIENTS WITH CORTICAL LESIONS—By M. R. Harrower (*British Journal of Psychology*, Vol. XXX, Part I—July, 1939).

In a previous study the author found that a truly ambiguous figure would be seen in terms of a previous perception in which one part of the field had definite figural properties, but this influence from a previous perception did not occur when the second drawing possessed other and opposite figural properties. The present study was designed to determine whether the same is true in the case of persons with cortical lesions. The experiments were conducted at the Montefiore Hospital in New York and the Neurological Institute in Montreal on 30 patients with cortical lesions and on 30 'normal' patients. The material for the experiment was a series of seven drawings in which three enhanced the profiles and three the vase, while one was an ambiguous figure in which the profile or the vase could be seen equally easily by normal subjects. Twenty-eight records of the experimental group (and three who deviated in the normal group) show deviations from the normal records. The deviations were of four kinds :—

I. There is a marked perseveration of the attitude engendered by the first perception, such that the figure seen in the first perception is maintained despite counter influences of figural properties.

II. There is a failure to recognise the ambiguous figure as meaningful object, even after correctly perceiving all the other figures.

III. There is a rigidity such that the less dominant figure cannot be seen at will, despite its having been perceived in other drawings in which it was the dominant figure.

IV. There is an introduction of other objects in the place of profile or vase, either throughout the whole series or in parts of it.

Besides the above deviations none but one of the cerebral group could make such a comment as was frequently mentioned by the normal group, viz., the drawings were such that both figures could be seen in quick succession. The other characteristic of the records of the cerebral lesion group was the more frequent reference to concrete details in the picture. The author concludes that such findings may give us clues to certain qualitative differences in the experiences and behaviour of persons suffering from cerebral lesions, differences which might well leave unaltered a quantitative estimate of the intelligence level, and might well pass unnoticed in ordinary daily life, and yet, if recognised, may enable us to reconstruct more accurately the changed psychological world resulting from changes in the brain.

A. DATTA

THE INFLUENCE OF PAST EXPERIENCE UPON PERCEPTUAL PROPERTIES—By Karl Duncker (*American Journal of Psychology*, Vol. LII, No. 2—1939).

The writer distinguishes two kinds of influence on past experience on perception. The direct influence is obvious in the empirical meanings which the perceptual material obtains from its relation to past experience. But it is also capable of definitely altering configurational features of the perception apart from the determination of its meaning. The conditions which help this indirect influence of past experience are analogous to those applying to sensory organisation (configuration proper): (1) Weak configurational factors in the present stimulation; (2) A perceptual attitude that, instead of 'skimming off' sense data, aims at the true properties of objects. The paper reports the results of two series of simple but interesting experiments which demonstrate the indirect influence of past experience on colour and taste qualities. It is found e.g., that if, a subject has to match

on the moving wheel the colour of a donkey cut out from a green card board, he would require half as much green as he would in order to match the colour of a leaf cut out from the same green card board.

H. P. MAITI

A CONFIGURATIONAL THEORY OF PUZZLES AND JOKES.—By Paul Schiller (*The Journal of General Psychology*, Vol. 18—1935).

The paper compares psychological effects of jokes and puzzles and tries to explain them with the help of the configurational theory of thought processes. In all the three cases of jokes, puzzles and problem solutions, we can distinguish two phases of a dynamic process which consists in transition from one configuration to another in the same situation. The first phase is one of unrest in feeling and of unstable structure of thought. The second phase is one of joy and relief, and marks the triumph of our power of thinking. The joy that attends the solution of a hard problem is 'a deep one,' whereas puzzles and jokes arouse a superficial joy indicating 'playful happiness by realising the power of reasoning.'

H. P. MAITI

ON INSTINCT SATIATION.—By David M. Levy (*Journal of General Psychology*, Vol. 18—1935).

It has been previously found by the writer and other investigators that if the feeding act is completed before the 'point of satiety' is reached, a 'sucking habit' results in dogs and calves as well as in children. The present study is the report of an experiment undertaken to enquire how far the pecking behaviour of chickens raised on a platform of wire mesh follows the same law of 'instinct satiation.' The experimental group, as compared with the control group, showed considerable amount of pecking activity in addition to more restless behaviour and consequent inability to reach the average height of the control group. Another interesting result reported is that the chickens, that have already ceased to peck from long stay in the experimental cage with the wire platform, 'regress' very strongly to the habit of pecking on their sudden restoration to the normal ground conditions. The experiment generally supports the theory of 'instinct satiation' in the field of pecking habit.

H. P. MAITI

Notes and News

It has been decided that the next International Congress of Psychology will meet in the summer of 1940 in Edinburgh.

The Fifth International Congress for the Unity of Science has been held at Harvard University in September this year. Special sessions have been devoted, among other topics, to "The relation of Biology and Psychology" and "The place of Social Sciences and Humanistic Sciences in the Edifice of Sciences."

We are sorry to have to refer to the death of Prof. Otto Klemm and of Prof. Wilhelm Stern. Prof. Klemm had been acting as Professor of Applied Psychology and Experimental Pedagogy at Leipzig from 1923 till his death in January last. His best known work is *History of Psychology*. Prof. Stern was for a long time in the Hamburg University, but had recently to leave Germany to join the Duke University. The two best known works of his are *The Psychology of Early Childhood* and *General Psychology from the Personalistic Standpoint*.

Prof. Frank N. Freeman has succeeded Prof. Harvey Carr as the Chairman of the Department of Psychology at the Chicago University.

Publication of Woodworth's *Experimental Psychology* has appeared to many as a recent event of considerable importance to Psychology. Ever since Prof. Külpe's *Outlines* got out-of-date about quarter of a century ago, we have been feeling the need of a suitable text-book for advanced students of psychology. Some believe that Woodworth's volume will meet this need for some time at least. Whether it will be able to do so or not, there is no doubt that the book is neither a manual, nor a history, nor a physiological account of psychology, nor a reference book, but a text-book of experiments and theories of psychology. We certainly welcome the book.

Dr. B. K. Bagchi, Ph.D. (Iowa), has been appointed Sir J. C. Bose Research Fellow of the Calcutta University in electro-encephalogy. The project of recording of brain rhythm from intact human brain—the first of its kind in India—has been made possible through an endowment left by the Late Sir J. C. Bose to the Calcutta University. The work will be conducted in the Bose Institute.

The Indian Psycho-analytic Society organised a course of popular lectures on psycho-analysis in Calcutta during the early part of this year. The names of lecturers with their subjects are noted below :—

S. C. Mitra—On the history of psycho-analysis, and Psycho-analysis and religion (3 lectures).

M. N. Banerji—Mental dynamism (6 lectures).

O. B. Hill—Sexual life (6 lectures).

H. P. Maiti—Dream, Symptom formation and Psycho-analysis and education (7 lectures).

G. Bose—Mental mechanism and summing up (7 lectures).

Illustrative case histories were dealt with by Banerji, Hill, Maiti, Laha and Bose.

The Indian Association for Mental Hygiene (Calcutta) has organised a course of 6 popular lectures on Child Psychology, all to be given by Owen Berkeley-Hill, I.M.S. (retd.)

The Calcutta University has recently introduced wide changes in the teaching of Psychology under it. (1) Psychology is now included as a subject of study and examination in the Intermediate course. Vidyasagar College, one of the oldest colleges of Calcutta, has already arranged for teaching of Intermediate Psychology and the number of the first batch of students in the subject is very encouraging. (2) Psychology is now also a subject for the B.A. course, alternative to Philosophy. Provision has been made for Social, Industrial, Child and Educational Psychology in the B.A. syllabus. (3) The Post-graduate course has been extensively revised so as to make it up-to-date. General, Physiological, Genetic and Abnormal Psychology form the subject-matters of four compulsory papers. The applied

character of modern Psychology is represented in the fifth optional paper (Educational, Industrial, Advanced Abnormal, Social and Indian Psychology). In the practical part, a student shall now not only have to complete a list of experiments, but also to carry on systematic investigation of a special problem. It is hoped that the new syllabus will fairly meet the demands both of theoretical and practical nature that Society can legitimately make from students of modern psychology.

We are extremely sorry to refer to the death of Prof. Sigmund Freud on the 24th September last. Prof. Freud was at his death in his eighty-third year and was living in St. Johns Wood, London. An account of his life and works will appear in the next issue of the Journal.

At a joint meeting of the Indian Psycho-analytical Society, Indian Psychological Association, the Psychological Society and the Department of Psychology, Calcutta University, held at 12 noon on the 25th September, 1932, at the Psychological Laboratory, Calcutta, the following condolence resolution was adopted :—

(1) That the societies mentioned above and the members of the Department of Psychology place on record their deep sense of grief at the death of Prof. Sigmund Freud on Sunday, the 24th September, 1939, in the city of London

(2) That a copy of the above resolution be sent to Miss Anna Freud with a request that the condolence may be conveyed to Mrs. Freud and other members of the family.

Supplement Studies on the Visual Perception of Geometrical Figure : Indirect Vision*

M. GANGULI

APPENDIX II

1. *Resumé*

This paper, which is an important supplement to the one submitted to the Indian Science Congress in the year 1933, is based on a comparatively large number of data and deals with the special character of the problem.

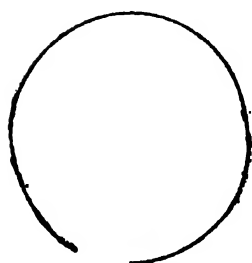
The threshold values are shown in a more systematic form with distortions of figure and phenomenal characters where necessary.

The chief issue is to present a comparative study with a graphic representation of the threshold values and to find out the general character of the *direct* and *indirect* vision when studied with a trained individual as subject.

- References : (I) Indian Journal of Psychology, Vol. III, 1928.
(II) Proceedings, Indian Science Congress, 1933.

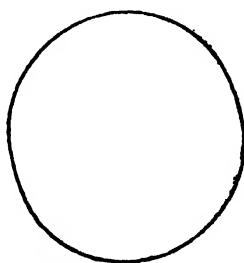
2. *Stimulus Cards*

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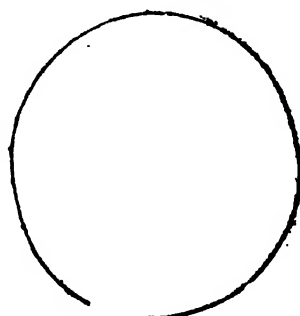
Gap - 25 degrees

Card No. 56



Gap - 0 degree

Card No. 36



Gap - 25 degrees

* *Vide* Indian Journal of Psychology, Vol. XIV, pp. 27-36.

3. *Direction to subject*

“ A figure will be exposed. You will have to report the nature of the figure. Judgment as to the completeness or incompleteness of the figure is required. Assume a passive attitude and do not anticipate ”

CALCUTTA

Special Notice

The Editorial Board has decided to bring out a special **FREUD AND ELLIS NUMBER** of the Indian Journal of Psychology. We shall welcome short articles dealing with special aspects of Prof. Freud's and Dr. Ellis's works and theories. The articles must reach our office by the first week of December next.

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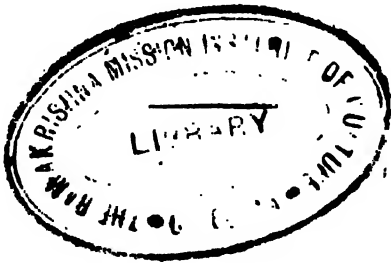
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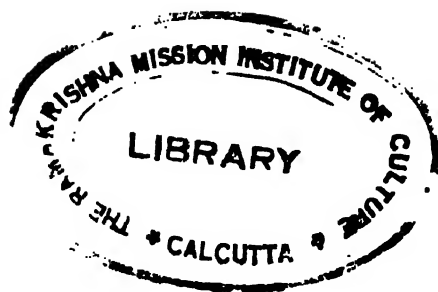
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